San José State University  
Art & Art History  
Art 106: Topics in the Human Machine Interface;  
Gestural Interfaces, Digital Kinematic Machines  
Section 1, Spring 2014  

Instructor: Steve Durie  
Office Location: Art Building Room 325  
Telephone: 408-924-4590  
Email: steve.durie@gmail.com  
Office Hours: Thursday 10-12pm (please e-mail for appointment)  
Class Days/Time: Tues-Thurs 3:00pm-5:50pm  
Classroom: Art Building Room 237  

Course Description  
Introduction to the issues, techniques and methods of human-machine interaction as defined in the different cultural, political, and scientific contexts. Exploration of advanced concept development, software and interface design and methods, using mobile computing and tele-presence related platforms. Prerequisites: art101a/art75 & art101b or instructor consent is preferred.

Course Goals and Student Learning Objectives:  
This course addresses conceptualization, design and production of art with respect to human computer interaction. The class focuses on developing conceptual and technical strategies for creating human machine interaction based art that are based on various ideas about interface language and artifacts. Subjects addressed in the class include: human cognition and machine interaction, the nature and meaning of the cyborg, machine and human learning utopian and dystopian technology, computer and electronic systems interface systems & simple and complex interaction models.

Course Content Learning Outcomes  
Upon successful completion of this course students shall:

LO1: Envisage and develop a variety of personal experimental approaches and techniques for creating human machine interaction based art.

LO2: Build and refine simple electronic interactive systems based on a variety of control
and interface components.

**LO3:** Build and refine custom circuitry with electronic fabrication techniques for rapid prototyping.

**LO4:** Identify and evaluate various technical options when faced with prototyping digital human machine electronic systems in the context of contemporary art.

**LO5:** Envisage and develop an aesthetic criteria for evaluating how to design and produce human machine based art systems.

**Required Texts/Readings**

Text: Natural Born Cyborgs by Andy Clark

**Recommended Text:**

Several texts for reading and as technical resources will be provided online

**Other equipment / material requirements**

A Laptop (preferably with a wireless connection A SJSU wireless account: http://www.sjsu.edu/unixaccounts Various ELECTRONIC TOOLS & PARTS NEEDED LIST TBA

**Classroom Protocol**

**Student Responsibilities**

- Students are responsible for all information presented in lectures and demonstrations, and through assigned readings and web related research.
- Students will present and critique their projects in class and on-line on the given due dates.
- Students are responsible for finding time to come in to the lab to complete assignments or use their own computer. Computer use and software is made available to students, it is your responsibility to take advantage of this or to purchase your own machines and software.
- Most importantly students are responsible for actively engaging in the course material by completing all course assignments and readings.
- During the course of the semester we will undoubtedly talk about things which are at the fringes of our society. If at any time you find the subject or content of this course compelling or problematic you are encouraged to discuss it. If however you find a presentation offensive you are encouraged to quietly, without disrupting the class, excuse yourself. It is then your responsibility to contact the instructor for make-up work.
- Additionally students are responsible for their own well being with in the University system. If you need help, it is your responsibility to ask for it.

**Dropping and Adding**

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Refer to the current semester’s Catalog Policies section at http://info.sjsu.edu/static/catalog/policies.html. Add/drop deadlines can be found on the
current academic calendar web page located at http://www.sjsu.edu/academic_programs/calendars/academic_calendar/. The Late Drop Policy is available at http://www.sjsu.edu/aars/policies/latedrops/policy/. Students should be aware of the current deadlines and penalties for dropping classes.

Information about the latest changes and news is available at the Advising Hub at http://www.sjsu.edu/advising/.

Assignments and Grading Policy

Projects:

Project0 (1%). If you were to get an upgrade. details tba (LO1, LO5)

Project1 (4%). Create a simple electronic circuit and find a place in public where it does not belong, and document it. Details tba (LO1, LO2, LO5)

Project2 (10%) A Introduction to the Arduino by making a simple programmable sound/light machine. Details tba (LO1 to LO5)

Group Mini Project with Duct Tape Tech -- 10% of grade -- Group Assignment
There will be 2 options for quick 'shoot from the hip' projects that will be performed as a group of people that investigate what one can do with both circuit bending and interface design as well as what can be done with a laptop, wireless, web cams, GPS devices, multimedia & mapping software and collaboration. The content must address issues brought up in the readings and discussions. Create a group website that documents your work. Details tba (LO1 to LO5)

Group Prototype Project -- 15% of grade – Group Assignment
Utilize micro-controllers, electronics and the concepts presented in class to come up with a group project that leverages your shared knowledge to make a single piece. Each group will evaluate and then choose from a variety of technologies focused on Mobile Devices & Smart Environment sensors. (LO1 to LO5)

Final Project -- (35%) -- Solo or Group Take what was learned form the previous projects to either continue to its next milestone as a group or make an individual project that 'spins off' from it. Many option are open with instructor permission. The project scope, design, Presentation and collaboration roles, will require Instructor review. The content must address issues brought up in the readings and discussions. Your work will culminate in a presentation event that you and your group will have to participate in. May 15 @9:45am FINAL EXAM Project Presentation due in room 237 details TBA (LO1 to LO5)

Portfolio & Reading Documentation Blog (10%) This includes:
- Reading feedback: You will be expected to post a review when we have our reading discussions. Provide a argument and other relevant issue and topics to what is being considered.
-Project documentation: Provide adequate documentation of all your solo projects. This
is even more important for your Final project.
- Group task sheet: A simple time-stamped list of the tasks that you did during the group projects. This will help me grade your work and participation in the group projects. (LO1, LO5)

Class Participation (15%) Participation when in class discussions, events, critiques, helping others all contribute to this grade. In addition you will be graded on your help for a presentation event at the end of the semester. (LO1, LO5)

Class Dynamics and consideration:
For the class to function well and for everyone to understand material and participate in the class accordingly, that every effort should be made to be considerate for both the instructor and other students while in class.

So please come to class understanding the following:
- You will be prepared with your laptop computer and all teaching material ready
- Cellphones off, this means no texting as well.
- No food except when instructor allows it. Drinks ok.
- No playing of video games, movies, & music outside of the class context
- Refrain from excessive social software use while class is in session.
- No excessive socializing when class is in session.
- No disruptive behavior, when conflicting with the class instruction or activities.
- Leave the classroom better then you found it; please don't leave papers, other class projects or any kind of mess behind. Be fancy and put some chairs under the desk, and tidy up the place.

Disregarding these rules gives the instructor the option to ask you to leave the class until the next session.

Readings, Discussions:
There will be reading assignments related to each project given out over the semester. We will have class discussions about the material. You will be expected to contribute to the issues brought up. Remember, reading the material is not enough; you have to communicate your thoughts on the matter in class.

Participation:
Participation is a large component of the class. Involvement in the readings, discussions, critiques, class collaborations, field trips and final presentations are critical for each student and the class to excel.

Collaboration:
Students may collaborate with each other on the Final projects. However the resulting collaboration will be evaluated expecting a higher degree of achievement. Students doing
collaborative projects must plan out what their roles will be and keep a journal about the project so they can be graded individually in terms of their technical and conceptual skills. Important: Collaborations must be approved by the instructor and will not be accepted otherwise.

Project Grading Criteria:
A. Review of Planning skills, Comps and “Demoing”
B. Formal and Technical Achievement
C. Innovative Response and Conceptual Approach

Assignment Grading

Project 0 -- 1%
Project 1 -- 4%
Project 2 -- 10%
Project 3 -- 10%
Project 4 -- 15%
Project 5-- 35%
Docs Reading & Blog -- 10%
Participation in Lectures, Readings, Critiques, Class Presentations, etc. -- 15%

Class Total: 100%

Extra Credit (research, field work) -- TBA, Instructor consent is required.

Grade Scale

Attendance per se shall not be used as a criterion for grading according to Academic Policy F-69-24. )

University Policies
Academic integrity
Your commitment as a student to learning is evidenced by your enrollment at San Jose State University. The University's Academic Integrity policy, located at http://www.sjsu.edu/senate/S07-2.htm, requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The Student Conduct and Ethical Development website is available at http://www.sa.sjsu.edu/judicial_affairs/index.html.

Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person’s ideas
without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include your assignment or any material you have submitted, or plan to submit for another class, please note that SJSU’s Academic Policy S07-2 requires approval of instructors.

**Campus Policy in Compliance with the American Disabilities Act**

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities requesting accommodations must register with the Disability Resource Center (DRC) at http://www.drc.sjsu.edu/ to establish a record of their disability.

**Student Technology Resources**

Computer labs for student use are available in the Academic Success Center located on the 1st floor of Clark Hall and on the 2nd floor of the Student Union. Additional computer labs may be available in your department/college. Computers are also available in the Martin Luther King Library. A wide variety of audio-visual equipment is available for student checkout from Media Services located in IRC 112. These items include digital and VHS camcorders, VHS and Beta video players, 16 mm, slide, overhead, DVD, CD, and audiotape players, sound systems, wireless microphones, projection screens and monitors.

**Learning Assistance Resource Center**

The Learning Assistance Resource Center (LARC) is located in Room 600 in the Student Services Center. It is designed to assist students in the development of their full academic potential and to inspire them to become independent learners. The Center’s tutors are trained and nationally certified by the College Reading and Learning Association (CRLA). They provide content-based tutoring in many lower division courses (some upper division) as well as writing and study skills assistance. Small group, individual, and drop-in tutoring are available. Please visit the LARC website for more information at http://www.sjsu.edu/larc/.

**Laboratory Access:**

Building access cards will be available for weekend and night access. All lab policies must be observed at all times. Access times are posted on lab doors.

**Emergency:**

Phone: 911, Escort Service: 42222

**Americans with Disabilities Act**

Individuals with disabilities may contact the Disability Resource Center on campus, 924-6000.
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topics, Readings, Assignments, Deadlines</th>
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<tbody>
<tr>
<td>1</td>
<td>Jan. 23th</td>
<td>-- First day, Greensheet review, Intro Micro project 0 &amp; 1, start reading the cyborg book</td>
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<td>2</td>
<td>Jan. 28th</td>
<td>-- Micro project 0 due, Lecture and Demo on Micro project 1 Skills &amp; -- Intro Micro Project 2 Skills discussion, Discuss reading &amp; Ch. 1-2 of NBC</td>
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<td>Jan. 30th</td>
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<td>3</td>
<td>Feb. 4</td>
<td>-- Micro Project 1 due , more on Micro Project 2</td>
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<td>Feb. 6</td>
<td>-- Show progress on Micro 2</td>
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<td>4</td>
<td>Feb. 11</td>
<td>-- Work on Micro project</td>
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<td>Feb. 13</td>
<td>-- Discuss Ch. 3-4 of NBC, Intro Mini Project</td>
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<td>5</td>
<td>Feb. 18</td>
<td>-- Micro Project 2 due, &amp; Critique</td>
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<td>Feb. 20</td>
<td>-- Review of Documentation Blogs Due, progress on Mini Project</td>
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<td>6</td>
<td>Feb. 25</td>
<td>-- Work on Mini Project</td>
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<td>Mar. 27</td>
<td>-- Mini Project due, Intro Prototype project</td>
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<td>7</td>
<td>Mar. 4</td>
<td>-- Discuss Ch. 5-6 of NBC Intro Prototype lectures and circuit examples -- Show Stage 1 of Proto project and more circuits.</td>
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<td>Mar. 6</td>
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<td>8</td>
<td>Mar. 11</td>
<td>-- Discuss Ch. 7-8 of NBC &amp; discuss circuit platform options -- Show Stage 2 of proto project &amp; critique</td>
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<td>Mar. 13</td>
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<td>9</td>
<td>Mar. 18</td>
<td>-- Review of Documentation Blogs</td>
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<td></td>
<td>Mar. 20</td>
<td>-- Show progress on proto project &amp; work on proto project</td>
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<td>10</td>
<td>Mar. 25</td>
<td>--Spring Break: No class</td>
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<td>Mar. 29</td>
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<td>11</td>
<td>Apr. 1</td>
<td>-- Work on proto Project</td>
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<td>Apr. 3</td>
<td>-- Discuss reading &amp; Intro Final Project &amp; Work on Final &amp; Prototype Project Due (Stage 4) &amp; more on Final Project</td>
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<td>12</td>
<td>Apr. 8</td>
<td>-- Final Project intro examples and Work on Final</td>
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<td>Apr. 10</td>
<td>-- Prototype Project Due (Stage 4) and demos</td>
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<td>Week</td>
<td>Date</td>
<td>Topics, Readings, Assignments, Deadlines</td>
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<td>13</td>
<td>Apr. 15</td>
<td>-- Lecture &amp; work on Final Project Plan</td>
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<td>Apr. 17</td>
<td>-- Present Final Project Plan</td>
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<td>14</td>
<td>Apr. 22</td>
<td>-- Final Progress Presentation &amp; Work on Final</td>
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<td>Apr. 24</td>
<td>-- Final Progress Presentation &amp; Work on Final</td>
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<td>15</td>
<td>May 29</td>
<td>-- Final Progress Presentation &amp; Work on Final</td>
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<td>May 1</td>
<td>-- Work on Final</td>
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<td>16</td>
<td>May 6</td>
<td>-- Final Progress Presentation &amp; Work on Final</td>
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<td>May 8</td>
<td>-- Documentation Blogs Reviewed</td>
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<tr>
<td>17</td>
<td>May 13</td>
<td>-- Show progress on Final Project &amp; work on Final (Last normal class)</td>
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<td>May 14</td>
<td>-- 1 on 1 Conference day -- no class</td>
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<td></td>
<td>May 15</td>
<td>-- @9:45am FINAL EXAM Project Presentation due in room 237 details</td>
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**Assignment Rubric**

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<thead>
<tr>
<th>Conceptual approach to work</th>
<th>Excellence (A)</th>
<th>Above Average (B)</th>
<th>Average (C)</th>
<th>Below Average (D)</th>
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<tbody>
<tr>
<td>The Student is able to take the essence and spirit of the conceptual ideas for the assignment and interpret, synthesize and contextualize with great facility. The student demonstrates a keen understanding of the content of the course material, and is able make it their own idea with their own personal style. The final work not only meets the criteria but it exceeds it.</td>
<td>The Student demonstrates a sincere attempt to engage in the conceptual ideas of the assignments. Most of the details and nuance of the conceptual idea behind the assignment is addressed in the work. The student clearly has understood what was expected, and the quality of the response is good but not stellar in its insight to the ideas. The work shows an understanding of the ideas but perhaps not a facility that creates a more thoughtfully realized solution.</td>
<td>The Student demonstrates a limited amount of understanding of the assignment and the idea(s) that reflect this in the work is only a mostly superficial interpretation of the requirements of the work. More thought and more consideration of how the ideas of the assignment could be used with their own experience and perspective.</td>
<td>The Student only shows the slightest understanding of the assignment and can only demonstrate a cursory understanding of the intent of the assignment. There is a general failure to follow the intent and nuance of the assignment and has made something that can only be described as something that needs a great deal of work before its considered something that is complete and meeting the requirements.</td>
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<td>technical accomplishments in work</td>
<td>organizational approach to work</td>
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<td>The Student demonstrates a clear mastery of the material and is able to demonstrate exemplarily capabilities with creating the technical aspects of the assignments. The student demonstrates a great facility for not just doing basic constructions, but is able to tackle more advanced implementations and succeed. The student also demonstrates a independence and a work ethic that is reflected in refined work.</td>
<td>All the student assignments are described and communicated with clarity and detail for every step of the assignment. Student shows a multitude of sketches at initial stages, and shows tangible progress up until the final version is presented. All correspondence with instructor and other classmates is clear and in a timely matter. They participate in all phases of the assignment and contribute a great deal to the social and critical evaluations of everyone’s work.</td>
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<td>The Student demonstrates a clear capability with the tools and material. The majority of the assignment is well crafted, and assembled to completion. Some parts could be refined and with further work the assignment could better reflect the intent of the idea. The work can be thought of as a good example of what is required to complete the assignment.</td>
<td>The Student makes clear attempts to show progress on their assignments to not just the instructor but to the class as well. There is regular participation in all the phases of the assignment and the Student shows limited engagement in the process of each assignment. There is a modest amount of participation with the assignment, and a minimum amount of effort to share progress with where they are in the process of the assignment.</td>
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<td>The Student demonstrates only a modest amount of skill in the tools and material. The assignment is well crafted, and assembled to completion. Several details key to the assignment or either missing, or represented in the most basic implementation. The assignment lacks a sense of finesse, and appears to be constructed with out much attention to detail and nuance.</td>
<td>The works is clearly either incomplete or demonstrates a complete lack of understanding the tools and approach to completing the assignment. There is no evidence that the student has gained much skill in the required tools needed to complete the assignment.</td>
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<td>The student all but abandons any attempt to coordinate and demonstrate their work with the instructor and class with their intension and ideas put forth in the assignment. There is no sharing of rough drafts or first attempts, nor is their much attempt to get feedback or share their thoughts on the assignment with anyone.</td>
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<td>Documentation</td>
<td>The Student is able to collect and present thoughtful documentation with all assignments well described, with complete text descriptions, a good amount of nicely placed images that are compressed and sized properly. When able there is a simple but effective video of how the projects behave and sound. There is also an abundance of links to various sources that are appropriate for the material. Lastly, there is a real degree of facility and design awareness to the documentation. Aesthetic are chosen that compliment the documentation of the assignments. Additional images and documents that help clarify each assignment and the process that went into making them are all well articulated in the documentation. Lastly, there is a good description and insight of how they and others worked together in collaborative work.</td>
<td>The Student is able to share good representations of each of the assignments, and a good effort is made to share the intent of what they made. They include pictures and text description, with links when appropriate. The text descriptions are in complete sentences, and there is some effort put into making the images in the proper compressed formats. Video clips are also present when needed to describe the projects with more detail. There is also a good effort put into how they collaborated with others in group project.</td>
<td>The Student gives a simple form of documentation, with a modest amount of time on preparing the images and giving good text description. The documentation although representing the work, lacks clarity and details to the approach the student took on a given assignment. Collaborative roles are mentioned but have minimum elaboration on how they worked as a team.</td>
<td>The Student has a poorly conceived and designed the documentation. Its missing the proper formatting of the text and image, and is missing many elements and details. For example: Incomplete descriptions on their approach. Images that are not compressed and sized properly. Also a lack of giving a account of their role in collaborative projects.</td>
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