San José State University
Department of Computer Science
CS286, Computational Creativity, Section 1

Fall Semester, 2016

Course and Contact Information

Instructor:	Margareta Ackerman
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Office Hours:	M 12:30-1:30, W 4:30-5:30
Class Days/Time:	TR 16:30-17:45
Classroom:	MH 422
Prerequisites:	CS 146 or equivalent Good programming skills

Course Description

The course will enable students to critically consider questions concerning the creative capabilities of computer systems and the impact of computing on the arts, as well as prepare students to contribute to research in this exciting field.

Topics include:

- History of human and computer creativity
- Foundations of computational creativity
- Computational musicology
- Computational visual arts
- Dance and technology

Learning Outcomes

Course Learning Outcomes (CLO)

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

1. Critically consider and discuss questions concerning the creative capabilities of computer systems and the impact of computing on the arts
2. Read, critique, and discuss research papers in the field of computational creativity
3. Program a TwitterBot that produces creative output
4. Carry out original work in the field of computational creativity
5. Write and present their work in a form suitable for researchers in the field

Required Texts/Readings

Veale, Tony. The Revolution Will Be Automated: Computers That Create, 2014. http://www.robotcomix.com/comix/IntroductionToCC/mobile/

Mumford, Martin, and Dan Ventura. The Man Behind the Curtain: Overcoming Skepticism About Creative Computing. Proceedings of the Sixth International Conference on Computational Creativity, 2015.

Colton, Simon, and Geraint A. Wiggins. Computational Creativity: The Final Frontier? ECAI. Vol. 12. 2012.

Other Readings [Optional]

Sawyer, R. Keith. Explaining Creativity: The Science of Human Innovation. Oxford University Press, 2011.

Veale, Tony. Hand-Made by Machines? An Illustrated Guide to Creativity in Humans and Computers, 2014. http://www.robotcomix.com/comix/HandMadeByMachines/mobile/

Veale, Tony. Do Androids Dream of Electric Tweets: Anatomy of a Creative Twitterbot, 2013. http://www.robotcomix.com/comix/Twitterbots/mobile/

Course Requirements and Assignments

Assignments/Projects:

- An essay on a topic related to foundations of human and computer creativity (5% of final grade)
- TwitterBot assignment, where students will write a program that tweets creative content (7% of final grade)
- Media conversion assignment, where students will write a program for automatically making art through a creative interpretation of another art form, such as converting a story into visual art, or visual art into music. (8% of final grade)
- A final project, consisting of original work in the field of computational creativity. The project will involve building a meta-creative or co-creative system. The project proposal, literature review, presentation (including a demo), and a final project writeup will make up 45% of the final grade.
- Participation in class is worth a total of 20%, and will include
  - An in-depth presentation on an existing creative system. Each student will be assigned a single system, on which they will prepare a detailed presentation.

- Discussions of academic literature in computational creativity. Students will be assigned to either support or critique each assigned paper during the class discussion, and should come prepared with well thought-out and supported arguments.
- Literature surveys on the following topics: computer musicology, computational creativity and visual art, technology in dance and drama, and social implications of computational creativity. Class discussion on each of these topics will be carried out.

Grading Policy

Assignments: 20%
Final Exam: 15% (to be held on Monday, December 19 14:45-17:00)
Final Project (including a talk on previous work, presentation & demo, and a final report): 45%

Nominal Grading Scale: Percentage	Grade
92 and above	A
90 - 91	A-
88 - 89	B+
82 - 87	B
80 - 81	B-
78 - 79	C+
72 - 77	C

Participation (consisting of class discussions, literature reviews, and a creative system presentation): 20%
Late work will not be accepted, except for documented extenuating circumstances.

Classroom Protocol

Timely arrival and attendance is expected for all classes. Please refrain from the use of computers and cellular phones during class. Active participation during class discussions is expected.

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 at http://www.sjsu.edu/gup/syllabusinfo/"

CS286 Title, Spring 2016, Course Schedule

The schedule is subject to change.

Course Schedule

Week	Date	Topics, Readings, Assignments, Deadlines
1	Aug 25	Introduction
2	Aug 30	Foundations of creativity

Week	Date	Topics, Readings, Assignments, Deadlines
2	Sep 1	Foundations of creativity
3	Sep 6	Foundations of computer creativity and TwitterBots
3	Sep 8	How to be creative
4	Sep 13	Casual Creators - *Essay due*
4	Sep 15	Markov chains
5	Sep 20	Overview of genetic algorithms
5	Sep 22	*Twitterbot due*/presentations
6	Sep 27	Foundations of computational creativity - critique papers
6	Sep 28	Foundations of computational creativity - critique papers
7	Oct 4	Foundations of computational creativity - class discussion
7	Oct 6	*Automated media conversion assignment due*/presentations
8	Oct 11	Methods from machine learning *Project proposal due*
8	Oct 13	Methods from machine learning
9	Oct 18	Computational musicology - ALYSIA *Project literature review due*
9	Oct 20	Computational musicology - System presentations -
10	Oct 25	Computational musicology (class discussion)
10	Oct 27	Computational creativity and visual arts - Painting Fool)
11	Nov 1	Computational creativity and visual arts - System presentations
11	Nov 3	Computational creativity and visual arts (Class discussion)
12	Nov 8	Project presentations - *Project due*
12	Nov 10	Project presentations
13	Nov 15	Project presentations

Week	Date	Topics, Readings, Assignments, Deadlines
13	Nov 17	“Beyond the Fence” - a computer generated musical
14	Nov 22	Computational creativity, dance and drama - Systems presentations
14	Nov 24	Thanksgiving - no class
15	Nov 29	Computational creativity, dance and drama (Class discussion)
15	Dec 1	Social implications of computational creativity
16	Dec 6	Social implications of computational creativity
16	Dec 8	Review - *Final project writeup due*
Final Exam		Monday, December 19 14:45-17:00