Electronic Music 1 2012 Syllabus

- **Electronic Music I 2012**
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This class will focus on three aspects of contemporary art: the combination of sound and image, interactive performance and modern compositional techniques and styles. This is a "tools" class where we will explore and use many software applications and will focus particularly on Cycling 74s MAX/MSP and Jitter software as well as Apple's Logic Pro, Reason, Ableton Live and the Audacity audio editor. We will cover the basics of all of the software needed to create these works.
In general we will be working with MAX/MSP for interactivity, Jitter for video work, Logic and Reason for sequencing, sampling and synthesis. We will use Audacity as an audio editor and either Quicktime Pro, iMovie, or Final Cut Pro for video editing.
Classes will meet in the Computer Music Center's main classroom, room 320H as well as the Recording Studio in room 317 Prentis Hall. Class meets once a week on Thursdays from 3:10 to 5:00.

Tentative Schedule

09/06/2013 How to create a simple collage/movie. Sources for public domain content. Using Quicktime Pro or image2movie to put together a stream of images and determine the frame rate. This first silent, short movie, less than a minute in length, will be due and shown in class on **09/20/2013**.

09/13/2013 Basic video manipulation using Jitter, control playback speed, and how to alter brightness, contrast and saturation. Using a controller to manipulate movie playback. Introduction to MIDI in MAX. Using Line~ for envelopes. Generating different waveforms in MSP.

09/20/2012 Using the matrix object. Playing and recording MIDI sequences. Creating a simple drum machine or sample player. Using the Disklavier to create an interactive piano duet similar Jean-Claude Risset's **Duets for One Pianist**. Using camera data to manipulate sound. Understanding MIDI control messages. Using a MIDI keyboard.

09/27/2012 More visual patches using the camera, camera data and recording the output. A look at different methods of synthesis – FM, Additive, Subtractive and Granular. Using camera data with sound. Working with re-wire to play a device in Logic instead of the built in AU DLS Synth 1. More Robert Breer videos and **Stria** by John Chowning.

Create a Jitter patch to play one of your own movies. Process your movie using Jitter, create a soundtrack in Logic or MAX and show the movie in class on **10/04/2012**.

10/04/2012 The psychology of sound, how to use psycho-acoustics to create movement in sound. Using Filters in MAX/MSP. Understanding Equalization and filter types. Using Delay, Pipe, Physical Models and VST plugins. A simple step sequencer. A look at the video work of Stan Brackhage.

10/11/2012 Using visual data to create a soundtrack through data mapping. Algorithmic control of music and data. Filtering data to create useful numbers. Using Coll files in MAX. Create a non-narrative movie where the visual images create the soundtrack using Jitter to show in class on **10/25/2012**.

10/18/2012 Creating color space – How to create evolving re-creations of Josef Alber's Color Studies in Jitter. Create a moving color study to present in class on **10/25/2012** and add an audio component. Working with controllers – DIEM dance suit, Wacom tablets, arduino, touch OSC, slider boxes, etc.

10/25/2012 Creating moving text and signage ala Jenny Holzer. Creating Text in Jitter using the LCD object. **Noa Noa** by Kaija Saariaho. Multi-channel playback.

11/01/2012 Campus Holiday – no class

11/08/2012 Creating works that have more than one screen. Superimposing and moving images in Jitter. Video delay and feedback. Lumakey, chromakey, compositing and recording video output in video.

11/15/2012 Creating simple 3D primitives. Mapping movies as textures to 3D objects. Introduction to the Fast Fourier Transform, various FFT patches in MSP. Using Spear – a free spectral editor written by Michael Klingbeil.

11/22/2012 Presence and motion detection. Color tracking. Background subtraction. Using AUVI processing effects.

11/29/2012 Free time to gather up any loose ends and help on final projects.

12/06/2012 Final Project due. An interactive audio-visual work of your own design that you can perform or present in class. This should be a longer more complete work of art.

Class resources:
The website for Cycling'74, makers of Max, MSP, and Jitter.
The website for Processing.

Some helpful texts:

- *Auditory Scene Analysis* – Albert S. Bregman
- *Computer Music* – Charles Dodge and Thomas Jerse

- *Computer Music Tutorial* – Curtis Rhoads
- *Music, Cognition, and Computerized Sound* – Perry Cook
- *Elements of Computer Music* – Dick Moore
- *Capturing Sound, How Technology Has Changed Music* – Mark Katz
- *Mastering Audio* – Bob Katz
- *Notes From the Underground* – Heinrich Taube
- *Master Handbook of Acoustics* – F. Alton Everest
- *Audio-Vision* - Michel Chion
- *In The Blink of an Eye* – Walter Murch
- *Point and Line to Plane – Wassily Kandinsky*
- Interaction of Color – *Josef Albers*
- *Mixing Engineer's Handbook* – Bobby Owsinski
- *Good Vibrations, A History of Record Production* – Mark Cunningham
- *TapeOp, The Book About Creative Music Recording* – Larry Crane
- *Old Masters and Young Geniuse*s – David W. Galenson
- *Conceptual Revolutions in Twentieth-century Art* – David Galenson