MAINFRAMES, MINICOMPUTERS, AND INTELLIGENT MACHINES: COMPUTATIONAL THINKING AND THE ARTS

UCLA, SPRING 2015

Undergraduate Seminar:
Tuesday
9:00-11:50 AM
Room: Covel 218

Professor:
Mike D’Errico
michael.derrico@ucla.edu
Office: Music Café
Office Hours: Thursday, 9-11

Course Description:
This seminar-workshop examines the cultural, and technological contexts of multimedia artists and software developers at the dawn of the computer age, including the technical and theoretical developments that led to the birth of the PC, the aesthetic and ethical values that engineers and designers embedded within these technologies, and the ways in which artists across media responded and reacted to new techniques and challenges presented by emerging digital tools. Combining technical instruction with critical reflection, weekly meetings engage emerging historical revisionist scholarship on multimedia art in the 1960s, with topics such as the birth of electronic music, algorithmic poetry, and early experiments with computer interfaces for visual art. Students gain two significant tools from the course: (1) historical and contextual knowledge of computer art across media platforms, including the ways in which these technologies and practices reflect broader social and cultural shifts in America during the Sixties, and (2) a set of tools and a working vocabulary for the analysis of software as cultural artifact.

Course Resources:
All readings, audio-visual materials, and software for the course will be shared via CCLE. Two open source software programs will be particularly useful throughout the seminar:

• Processing: https://processing.org/download/
• Pure Data (Pd): https://puredata.info/downloads/pd-extended

Assigned Work and Grading:
Our daily activities will include class discussion, listening to records, watching videos, and hands-on technology workshops. Grading breakdown is as follows:

1. Participation (30%): everybody should come prepared to discuss course materials, participate in seminar activities, and contribute regularly to class discussion.

2. Weekly discussion facilitation (20%): each week, two to three students will be responsible for facilitating discussion around the course materials for the week. Facilitators should prepare to point out significant passages within the readings,
listening examples, or videos, and make connections to discussions and course materials from previous weeks.

3. Weekly blog posts (20%): each week, students will post a 250-word reflection to the course website, due at 9pm the night before seminar (the first post is due April 6 at 9pm). This brief write-up could detail aspects of the course materials that the student finds interesting, troubling, significant, or confusing, and should make as many connections to issues introduced in seminar discussions of the previous weeks. Ideally, these posts will combine insights from the student’s technical work in Processing and Pure Data, and the theoretical work from the readings.

4. Paper and multimedia project (30%): six to eight-page seminar paper and supplemental Processing or Pure Data project, to be presented for the class on a topic of your choice. Broadly, the paper should address the questions “How have computers influenced artistic production?” and “What is the nature of computational thinking and the arts?” through the lens of your practice with either Processing or Pure Data software.

   a. Project Timeline
      i. April 13 – submit 300 word project abstract as a blog post to the “Projects” discussion forum by 9pm
      ii. May 19 – bring three hard copies of paper draft, and project samples, to class for a peer editing workshop
      iii. June 2 – each student will have 6 minutes for project presentations.
         E-mail papers to Professor D’Errico by 9pm

SCHEDULE OF CLASSES:

Week 1: Intelligence (3/31)

Reading:

- Vannevar Bush, “As We May Think,” in The New Media Reader, 35-47.
- Alan Turing, “Computing Machinery and Intelligence,” in TNMR, 48-64.

Assignment:

- Complete Processing tutorial: http://hello.processing.org

Artworks:

- Ben F. Laposky’s “Oscillon” series
• Examples of artworks and software built using Processing
• Francisco Vico and the “Iamus” project (2012)
• Aphex Twin, Computer Controlled Acoustic Instruments pt2 (2015)

Week 2: Synthesis (4/7)

Reading:
• Friedrich Kittler, Introduction to Gramophone, Film, Typewriter
• J.C.R. Licklider, “Man-Computer Symbiosis,” in TNMR, 73-82.

Artworks:
• Louis and Bebe Barron, Theme from Forbidden Planet (1956)
• Max Matthews, “Numerology” (1960)
• Jean-Claude Risset, “Mutations” (1969)
• Phosfiend Systems, Fract OSC (2014)
• Pure Data (Pd) sample patches

Week 3: Software (4/14)

Project Proposals Due

Reading:
• Lev Manovich, Introduction to Software Takes Command
• Steve Reich, “Music as Gradual Process” (1968)
• Miller Puckette, “Computing While Composing” (2006)
• Douglas Kahn. “James Tenney at Bell Labs.” In Mainframe Experimentalism, 131-146.

Artworks:
• Lejaren Hiller, “Iliac Suite” (1957)
• Steve Reich, “It’s Gonna Rain” (1967)
• Brian Eno, “Ambient 1: Music for Airports” (1978); “Generative Music 1” (1996)
• Daniel Franke and Laura Keil, “Unnamed Soundsculpture” (2012)
• Ed Key and David Kanaga, Proteus (2012)

**Week 4: Intermedia (4/21)**

**Reading:**

**Artworks:**
- Frieder Nake, “Hommage à Paul Klee” (1965)
- John Whitney, “Permutations” (1966)
- Hiroshi Kawano’s “Artificial Mondrian” series
- Vera Molnar, “Molndrian” (1974)

**Week 5: Society (4/28)**

*No seminar on Tuesday. Attend Inertia conference 4/30 – 5/2.*

**Reading:**
- David M. Berry, Introduction to *Critical Theory and the Digital* 

**Week 6: Event (5/5)**

**Reading:**

**Artworks:**
- John Cage, “Williams Mix” (1952)
- Wolf Vostell, “TV Burying” (1963)
• Nam June Paik, “Electronic Opera No. 1” (1969)
• John Cage, “HPSCHD” (1969)

Week 7: Hypertext (5/12)

Reading:
• Christopher Funkhouser, “Digital Poetry: A Look at Generative, Visual, and Interconnected Possibilities in its First Four Decades,” in A Companion to Digital Literary Studies

Artworks:
• Nanni Balestrini, “Tape Mark I” (1962)
• Eric Andersen. “Opus 1966” (1966)
• Masterman and McKinnon-Wood, “Computerized Haiku” (1968)
• Martin Fuchs and Peter Bichsel, “Written Images” (2011)

Week 8: Theory (5/19)

Peer Edit Drafts Due (Three copies)

Reading:
• Jean Baudrillard. 1972. “Requiem for the Media.” In TNMR.
• Lev Manovich. “What is New Media?” In The Language of New Media, 43-74.

Week 9: Future (5/26)

Reading:
• Joseph Weizenbaum. “Computer Power and Human Reason.” In TNMR.

Week 10: Presentations (6/2)