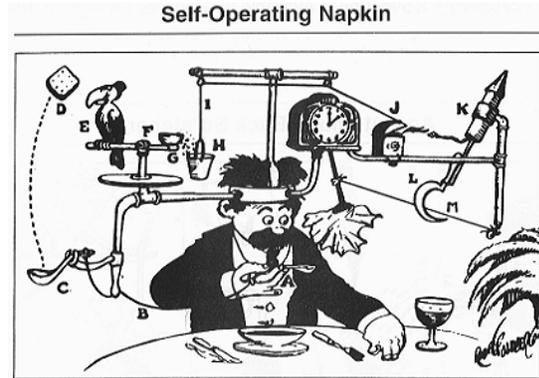
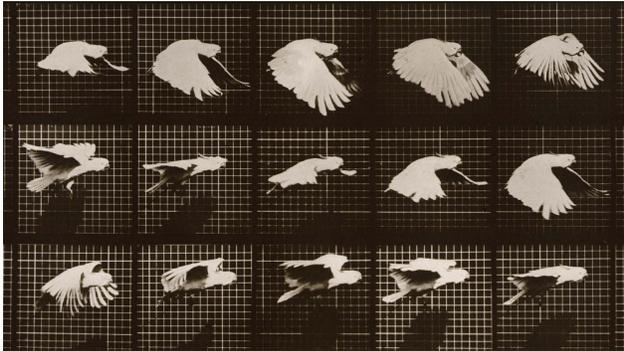


Media In Motion:

Exploring cause and effect in animation, sculpture, and interactive experiences



Advanced Computing Center for the Arts and Design
The Ohio State University

M/W/F – 12:00 – 4:00pm

T/TH – open lab time 12-4pm

Location: ACCAD (Sullivant 349 A) and Hopkins Hall 171

Professor: Isla Hansen

email: Hansen.492@osu.edu

or isla.hansen@gmail.com

Course Description

This intensive project-based class is an experimental studio / lab that explores the relationship between animation and physical objects and spaces, prompting the constant navigation back and forth between digital and physical modes of thinking and working. The concepts we will explore as a group include the relationship between body and technology; scripted spaces and physical narratives; cause and effect in physical computing / robotics and animation; choreographed, sympathetic, or emergent movement; the translation of the digital to the physical, vice versa, and more. Our experiments will take inspiration from the history, theory, and technology of both physical and digital animation as well as sculpture, theater, games, and the cinematic arts. We will make use of various animation concepts and tools to develop physical works, installations, or performances that could be in dialogue with virtual worlds, as well as multimedia interactive experiences. With animation as our lens, and from a critical perspective,

we will explore ideas surrounding motion; audience participation and interactivity; mechanisms of control; multimedia sensorial experience; and post-digital aesthetic that are relevant to contemporary art and design today. Prior knowledge of at least one of the following is recommended: basic 3d modeling, animation, programming, physical computing, or physical construction.

Course Objectives

- 1) Explore the history of animation, tactical media, and analog and physical cinematic, theatrical, and sculptural techniques. Investigate the idea of motion, especially as it relates to the history of technology and relationships between the digital and the physical through the history of art and design.
- 2) Learn very basic programming as well as various digital, electronic, and mechanical techniques associated with physical computing and basic robotics to make gestures and movements that don't necessarily need to be useful or functional
- 3) Experiment with different modes of digital design and physical construction, testing toolkits both old and new, learning to adapt to new processes for fabrication that could include: CNC routers, 3d printers, laser cutters, sewing machines, and more.
- 4) Explore methods of human-computer-interaction, various sensing mechanism (including light, depth, and touch), and alternative methods for control and interaction with digital worlds
- 5) As individuals, continuously redefine our artistic methods and goals as we better understand ourselves in relation to a greater art world, history, and an immense broader culture
- 6) As a collective group, continuously redefine what it means to be artists making work on, for, with, against, or about our relationship to technology

Course Texts

Note: These books and articles are relevant as whole texts, but optional. Excerpts, shorter readings, and additional articles, will be provided for group readings and discussion and study in and out of class.

- ÿ Karen Archey - *Bodies in Space: Identity, Sexuality, and Abstraction of the Digital and Physical* (2015)
- ÿ Esther Leslie – *Hollywood Flatlands: Animation, Critical Theory, and the Avant Garde* (2002)
- ÿ Katherine Hayles – *How We Became Posthuman: Virtual bodies in cybernetics, literature, and informatics* (1999)
- ÿ Norman Klein – *The Vatican to Vegas: A History of Special Effects* (2004)
- ÿ Rube Goldberg – *Rube Goldberg vs. The Machine Age* (1968)
- ÿ Artie Vierkant – *The Image Object Post-Internet* (2010)
- ÿ Casey Reas, Chandler McWilliams, and LUST – *Form+Code, In Design, Art and Architecture* (2010)
- ÿ Julian Oliver & Danja Vasiliev – *The Critical Engineering Manifesto* (2011)
- ÿ Friedrich Kittler – *Optical Media* (2010)

ÿ Marshall McLuhan – *Understanding Media: The Extensions of Man* and *The Medium is the Massage: An Inventory of Effects* (1967)

ÿ David Garcia & Geert Lovink – *The ABC of Tactical Media* (1997)

ÿ *Making the Scene: A History of Stage Design and Technology in Europe and the United States* – Oscar Brockett, Margaret Mitchell, Linda Hardberger (2010)

ÿ Albert Hopkins – *Magic: Stage Illusions, Special Effects and Trick Photography* (2010)

Summary of Projects / Assignments:

1. SCRIPTED SPACES (collaborative) – Due May 12 in class
2. DIGITAL SOURCE (individual) – Due May 15 in class
3. WORKSHOP / DEMO / TALK (individual) with below proposal – Due May 15 in class
4. PROPOSAL presented with above - Due May 15 in class
5. PROJECT PROTOTYPE (indiv. or collab) – Due May 24 in class
6. READING RESPONSE (individual) – Due May 31 in class

FINAL PROJECT IN CONTEXT WITH TITLE (indiv. or collab) – Due June 5 in class

7. DOCUMENTATION / TITLE / DESCRIPTION with BIBLIOGRAPHY – Due June 5 on Carmen by Midnight (#7 – really no late works accepted!!)

ASSIGNMENT DESCRIPTIONS

Scripted Spaces – 20 points

Due Friday May 12

In class collaborative project (break up into 2 or 3 groups) – create an installation, map, or experience (somewhere on campus!) that tells a story by creating spaces through which an audience must move in a certain direction.

The narrative / story you choose to tell might be less important than HOW you create this scripted / narrative series of effects.

Digital Source – 20 points

Due Monday May 15

DUE in class during presentation AND ON CARMEN (as screen capture, still, non-proprietary file type)...

Create, find, or tweak a 3d model or some sort of digital figure / material source that you want to work with in the following weeks (build it, find it online, scan something, whatever). This *can* be part of a longer animation or another piece, if it's something you are already working on. If you do appropriate something you find online, consider somehow making it your own by changing it, or know exactly why the indexical quality of the "readymade" is important. In all cases, you should be able to answer: Why do you want to work with this particular source / model?

Ideally, it should be in a file format importable into Unity (or could easily be converted if not), so if its c4d or something proprietary, make sure you can eventually convert it to FBX, .3ds, .obj, even mp4s and flat images work, see here: <https://docs.unity3d.com/Manual/3D-formats.html> (Links to an external site.)Links to an external site.

I don't care what you make it in or put it in or find it in, possible programs are infinite:

Maya, Blender, Zbrush, 3Ds max, C4d, Fusion360 or other CAD programs, etc. etc.

Places to find models:

Turbosquid, Exchange 3D, TheFree3Dmodels, DMI 3D, OYONALE, 3Delicious, Nasa, etc.

If you know something or somewhere we don't, please share!

Proposal – 15 points

Due Monday May 15

Due in Class

End your 15 minute talk / workshop / demo / presentation (due the same day) with a proposal – for either a collaborative or individual project. Propose a work, narrative animation, kinetic sculpture, installation, anything that “moves” in some way to show cause and effect, possibly a la Rube Goldberg, possibly to tell a story – **you should have a sketch / model / prototype and an FSM (Finite State Machine) --- think of it like a flow chart / schematic diagram**

ALSO – show us Assignment 2, the digital source / 3d model you've been thinking about working with

Workshop / Demo / Talk – 20 points

Due Monday May 15

DUE IN CLASS

Teach the class a 15 minute demo / workshop (technical or conceptual) or do a 15 minute presentation based on your work or your expertise (this can all roll into one if applicable)

Your presentation should end by showing us:

Assignment 4:

End the presentation with a proposal – for either a collaborative or individual project -- propose a work, narrative animation, kinetic sculpture, installation, anything that “moves” in some way to show cause and effect, possibly a la Rube Goldberg, possibly to tell a story – **you should have a sketch / model / prototype and an FSM (Finite State Machine) --- think of it like a flow chart / schematic diagram**

ALSO – show us Assignment 2, the digital source / 3d model you've been thinking about working with

Project Prototype – 35 points

Due May 24

PROJECT DUE IN CLASS,

FIRST DRAFT OF BIBLIOGRAPHY ALSO DUE IN CLASS & ON CARMEN

Bibliography - Organized (categorized) and hyperlinked bibliography of all resources you've used throughout this class (does not need to be in MLA format)

Project Prototype:

What have you learned about optical devices, and proto-media media?

Build a prototype of one of the following:

1. Your proposal from assignment 3 (or one new and improved)
2. An “animation” of any sort, physical or digital (featuring your source or model)
3. Re-make one of the devices we saw Friday
4. Build something from your digital model and do it using some method of digital-to-physical construction.

Your prototype should effectively "update" your proposal for your final project.

Reading Response – 20 points

Due June 2

Write a 1-2 page response / essay on one of the uploading readings (or how a reading relates to something you're doing in your final project). PLEASE SUBMIT THIS ON CARMEN BY FRIDAY.

Choose one of the excerpts from the readings you'll find in the class files.

OR choose some other source you've found / are reading if its VERY relevant to your project (please run by me for approval first).

Final Project – 50 points

Due June 5

Make a finished work, possibly a more complex system or version of one of your previous proposals / prototypes / or projects (assignments 1,2, 4, or 5). Think about adding interactivity, new context, performance, or scale it up! You can also collaborate with a classmate, or multiple, to combine or connect your works to make a multimedia cross-physical-digital experience. Project possibilities we've been discussing since Day 1 are: making scripted spaces; creating moving narratives; causing reactions and effects; creating physical animations and proto- or post-cinematic devices; creating alternative physical controls or interactive mechanisms for animations / games / digital experiences; interaction as interesting or sensational input and responsive or choreographed output; or even turning our interactive or digital mechanisms back into experiences in the physical realm.

Bibliography / Title / Description – 20 points

Due June 5

Consider this your final exam for this class. I need the following:

Title of work

Description

Instructions (if necessary)

Optional (hand in on carmen for extra credit): Documentation (stills, video, screen capture, media, whatever is relevant and necessary to understand the piece)

Bibliography - Organized (categorized) and hyperlinked bibliography of all resources you've used throughout this class (does not need to be in MLA format)

Link to a website with all of the above is ideal. Files okay too.

Course Schedule

This schedule is subject to changes. It will be updated online and I will notify you of dramatic differences in class and, if necessary, via reminder emails.

May 10

12pm – 2:00pm @ ACCAD

Introduction to class, procedures (developing your “bibliography”), syllabus, and the experimental nature of this course. Explain “ongoing bibliography” of resources.

Student introductions, pronoun preferences, background

woodshop training Tuesday May 16th

Lectures / examples / discussion: Brief history of motion in the arts. Thinking physically. *The Vatican to Vegas*, Narrative and scripted spaces, disney rides, maps, malls, games, and stories

Reading (start in class): Excerpts from Norman Klein and Karen Archey or Katherine Hayles

2pm-3pm @ Hopkins workshops & labs

HOPKINS SHOPS: INTRO TO DIGITAL FABRICATION

Intro to Assignment 2

Assignment 2 (due May 15): create, find, or tweak a 3d model or some sort of digital figure / material source that you want to work with in the following weeks (build it, find it online, scan something, whatever). This *can* be part of a longer animation or another piece, if its something you are already working on. Why do you want to work with this particular source / model? (should be importable into Unity, so if its c4d or something proprietary, convert it to FBX, .3ds, .obj, even mp4s and flat images work, see here: <https://docs.unity3d.com/Manual/3D-formats.html>)

I don't care what you make it in or put it in or find it in, possible programs are infinite:

Maya, Blender, Zbrush, 3Ds max, C4d, Fusion360 or other CAD programs, etc. etc.

Places to find models:

Turbosquid, Exchange 3D, TheFree3Dmodels, DMI 3D, OYONALE, 3Delicious, Nasa, etc.

If you know something or somewhere we don't, pleas share!

3pm – 4:00pm @ Hopkins 171 & Oval

Work on Assignment 1 (due May 12): in class collaborative project (break up into 2 or 3 groups) – create an installation, map, or experience that tells a story by creating spaces through which an audience must move in a certain direction

May 11

12 - 4 Lab time – work on Assignment 1 in your groups

May 12 –

FIELD TRIP – BILLY IRELAND CARTOON LIBRARY @ 2pm

12pm meet @ ACCAD

12 - 1pm @ Hopkins 171, Oval, wherever your projects take place

Due: Assignment 1 – experience / crit / discussion

1pm-2pm @ ACCAD

Finish Discussing Norman Klein & previous reading assignments

Lectures / examples / discussion: Rube Goldbergs in print, animation, cinema, and art; Kinetic sculptures, Fischli & Weiss; cause & effect (input /output); simple machines; state machines; sympathetic motion

2pm-3pm

Field Trip: Billy Ireland Cartoon Library

3pm – 4pm

Discussion of Rube Goldberg and introduction to Assignment 3 + sign up for presentations

Weekend Reading: *Rube Goldberg vs. The Machine Age* / photos from class,
excerpts Erkki Huhtamo, Benjamin, Kittler (to be discussed May 17)

Assignment 3 (Due May 15):

Teach the class a 15 minute workshop (technical or conceptual) or do a 15 minute presentation based on your work or your expertise (or whatever you want)

Assignment 4:

End the presentation with a proposal – for either a collaborative or individual project -- propose a work, narrative animation, kinetic sculpture, installation, anything that “moves” in some way to show cause and effect, possibly a la Rube Goldberg, possibly to tell a story – **you should have a sketch / model / prototype and an FSM**

ALSO – show us Assignment 2, the digital source / 3d model you’ve been thinking about working with

May 15

12pm – 4pm @ ACCAD

Due: Assignment 2 & 3

All workshops / presentations

May 16

12- 2pm – Group 1 Woodshop training

Group 1

2pm – 4pm – Group 2 Woodshop training

Group 2

May 17

@ ACCAD

12 – 1 pm

Lectures / examples / discussion: Concepts of digital to physical, light strobe / shutter speed in relation to biology, zoetropes, examples of artists and designers, Muybridge

Discussion of reading Huhtamo / Benjamin / Kittler

Introduce Assignment 5

1 – 1:30pm

Demo of Rigging 3D model, animating, & exporting frames as STLs

Example of 3D model zoetrope:

<http://kellyegan.net/2014/09/19/3d-printed-zoetrope/> (Links to an external site.)Links to an external site.

If you want to automate exporting the frames, use Kelly's python code:

<http://kellyegan.net/2014/09/19/3d-printed-zoetrope/#blendercode> (Links to an external site.)Links to an external site.

1:30pm – 2:30pm

Work time – work on your digital source / 3d model. Make a plan for making it physically come to life

3:30pm – 4pm

Demos: Other methods of Digital to Physical construction

3d construction from 3d modeling concepts, surface or body, slicing

Subtractive processes / CNC Routing & Laser Cutting

Additivism / 3D printing

Unwrapping 3d model UVs & reconstruction;

patterning (printing / sewing);

fabrication / construction techniques;
artist and designer examples;
rigged models, zoetropes, puppetry.
Known methods and inventing your own.

May 18

Muybridge Documentary
Lab time – work time for upcoming Assignment 4
Workshop some methods discussed yesterday

May 19

FIELD TRIP @ 2pm Thompson Library Special Collections

12pm – 2pm @ ACCAD

Anything unfinished from last class's demo's / lectures

Work time – edit your models / sources, begin rigging / playing with them, or work on your model / prototype / FSM for your rube Goldberg proposal

2pm – 4pm @ Special Collections Thompson Library – Magic Lanterns, proto-cinematic animation machines

<https://library.osu.edu/find/collections/theatre-research-institute/teach-with-us/group-protocols/> (Links to an external site.)
[Links to an external site.](#)

Group up – each group picks an optical device, mechanical part, technological device, optical illusion, on display for us at our Special Collections visit – research its history, what it does, and most importantly, how it works. Each group will present information about their device at the end of our visit

Reading:

Norbert Wiener, Katherine Hayles

Assignment 5: Due May 24

What have you learned about optical devices, and proto-media media?

Build a prototype of one of the following:

1. Your proposal from assignment 3 (or one new and improved)
2. An “animation” of any sort, physical or digital (featuring your source or model)
3. Re-make one of the devices we saw Friday
4. Build something from your digital model and do it using some method of digital-to-physical construction.

Use your prototype to update your proposal

May 22

@ACCAD

12pm – 1:30pm

Discussion of Norbert Wiener & Katherine Hayles

Lectures / examples: Leaping off from FSMs, thinking about cause and effect in relation to basic robotics, theories of cybernetics, programming concepts, and physical computing

1:30 – 2pm

Basic physical computing demo with sensors & actuators

2pm – 4pm

Play time – pick a sensor, pick an actuator, do online research, look up data sheets, make one thing do something else

Draw out your electronics schematic and draw an FSM diagram for your actuation

3:45 – 4pm – Show & tell

May 23

Lab time – work on Assignment 4 !

May 24

Due: Assignment 5

Prototype Crits

May 25

Field Trip to COSI

May 26

@ ACCAD

12:00 – 12:30pm

Discussion: Lessons from field trip - Where interactivity and audience participation happens and why; digital interactive performances; games and science museums; audience participation;

12:30pm – 1:30pm

Demo – Brief animation in Unity & sensors interacting with Unity – “We Are Not Just Finger People”

1:30 pm – 3pm

Create a simple animation with your digital source in Unity (what happens to it and why? Think about how it could relate to an alternative method of control);

In class work time to try it out working with Unity and sensors- create a mechanism with a physical sensor to interact with or control your digital source / model / animation. Draw out your electronics schematic and draw an FSM diagram for the interactive experience.

3:30 – 4

Shift + Alt + Ctrl lecture

Assignment 6 (due May 31): Brief reading presentation

Reading: Choose one of the excerpts from the provided readings – Esther Leslie, Karen Archey, Artie Vierkant, Katherine Hayles, Kittler, Oliver & Vasiliev, or Garcia & Lovink, etc.

OR some other source you found if its VERY relevant to your project

Do a 5 - 10 minute presentation on how the reading relates to something you're doing in your final project

May 29 – Memorial Day, No Class

May 31 – DUE: Reading Presentations & Work day

June 2 – Work Day

June 5 – Final Project Due

Final Crit: On the last day of class, we will hold a formal critique. Your project should be installed in a way that you intend an outside viewer to see it or participate with it.

Final Project (due June 5):

Make a finished work of art or a more complex system from one of your previous proposals / prototypes / or projects (assignments 1,2, or 4). Think about adding interactivity, new context, performance, or scale it up! You can also collaborate with a classmate, or multiple, to combine or connect your works to make a multimedia cross-physical-digital experience. Project possibilities we've been discussing since Day 1 are: making scripted spaces; creating moving narratives; causing reactions and effects; creating physical animations and proto- or post-cinematic devices; creating alternative physical controls or interactive mechanisms for animations / games / digital experiences; interaction as interesting or sensational input and responsive or choreographed output; or even turning our interactive or digital mechanisms back into experiences in the physical realm.

Work time for final projects &

Final Exam / Assignment 7: Hand in documentation of your project with title and description and (if necessary) instruction manual.

Due June 5th at MIDNIGHT – NO LATE WORK WILL BE ACCEPTED

Procedures

Time in class will be spent looking at examples, discussing history and theory, participating in technical demonstrations, experimenting with new toolkits, doing research, and engaging in technical practice to develop projects collaboratively and complete assignments. As an experimental inter- and multidisciplinary lab, this class is a collaboration between the instructor and the students. Many of the projects we will be working on make use of new technologies and experimental processes, so we will work together to build collaborative solutions to problems, or fail exuberantly in the attempt. Students are expected to participate in class discussion, and enhance dialogue by bringing examples and their own technical knowledge to class to share with classmates. **Each student will keep documentation of their research, experiments, processes, trials, and errors – including a hyperlinked bibliography – to contribute to the class resources.**

Though assignments and projects in this class are structured based on both conceptual ideas and technical tools we will investigate per the syllabus, students are encouraged to take their work in whatever direction interests them most. They are encouraged to experiment in mediums they may be less familiar with, but are also expected to use the knowledge they enter class with to their advantage. This class is taught like an art course – and the individual or collaborative pursuit of an idea or concept will be privileged over technical mastery. The themes, materials, and processes you choose to work with in this class are open – do the thing that makes you excited! -- but should be selected for specific conceptual purposes and with a critical eye. This is an opportunity to do something new you are excited to try, even if you might fail, in a supportive an open-minded environment.