Creative Coding

Professor Danne Woo

creativecode.dannewoo.com

ARTS 249

Spring 2020

Thursday 2:00 PM – 5:50 PM

I-Building 213

Motion and Interaction

Week 08: Kinetic Forms

Week 09: Drawing and Interaction (Mouse)

Week 10: Interaction and Image Import (Keyboard and Events)

Week 11: 3D

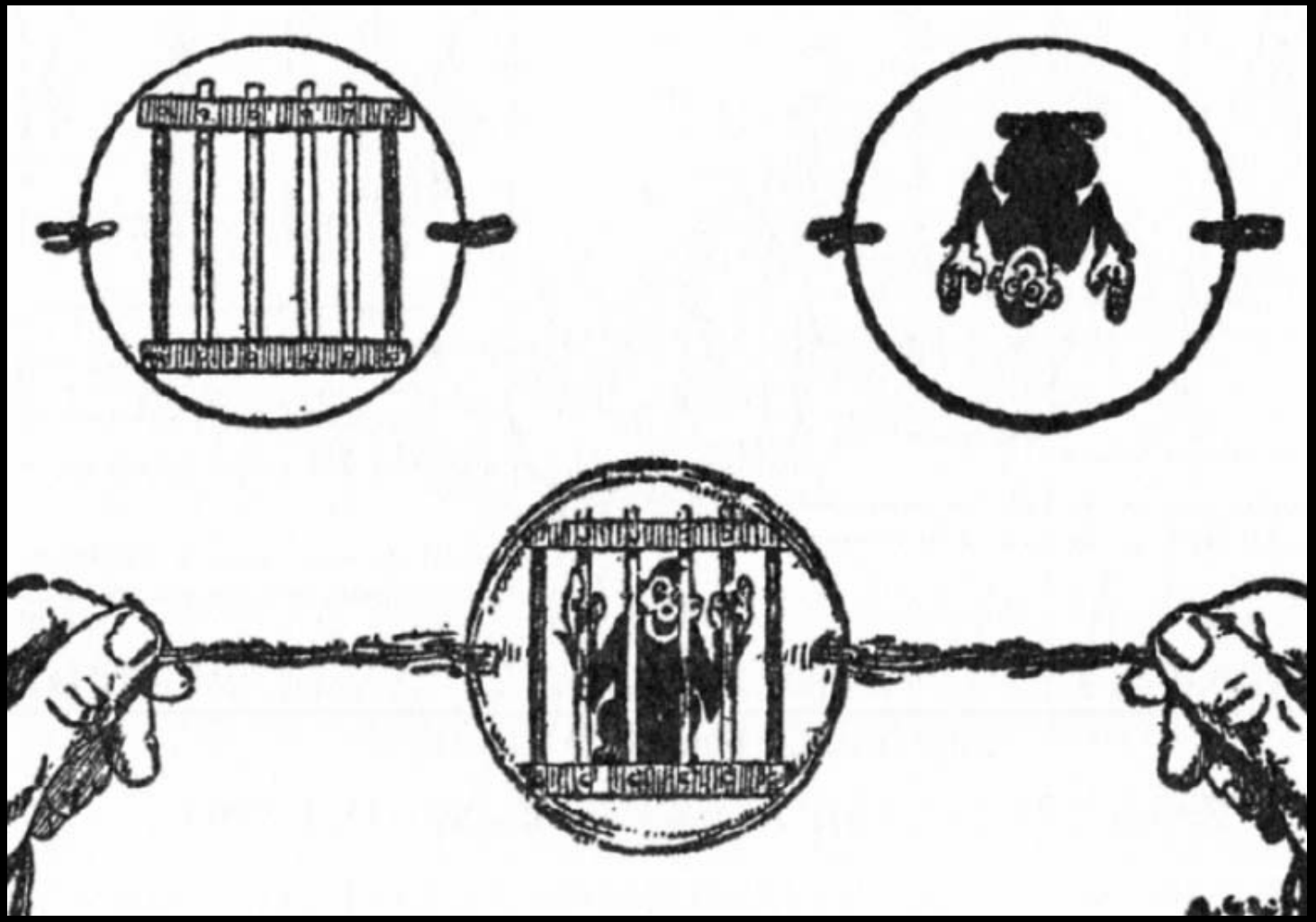
Week 12: Audio

Week 13: Computer Vision

Week 14: Final Presentation

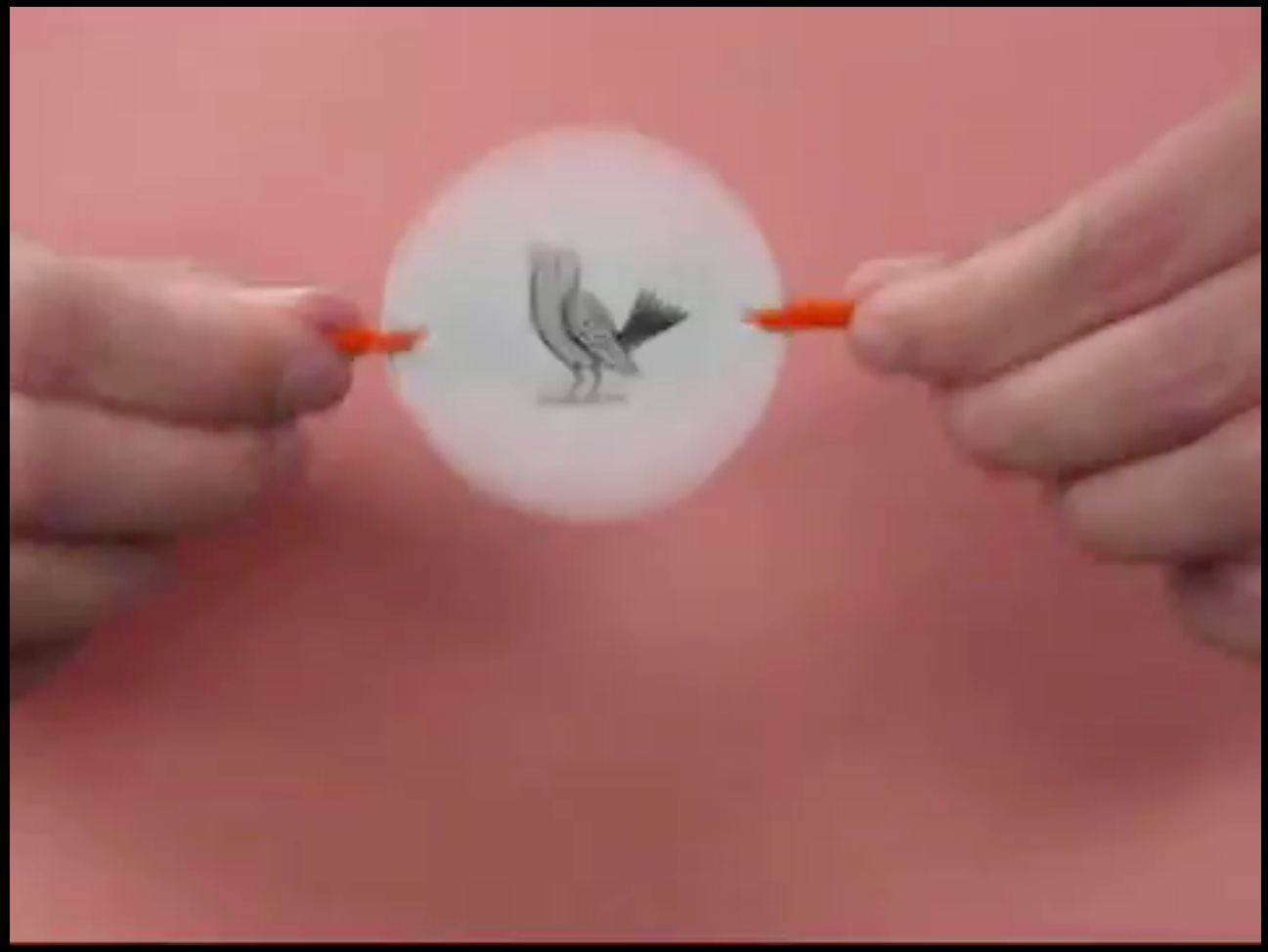
History of Animation

Thaumatrope



History of Animation

Thaumatrope



History of Animation

Zoetrope

History of Animation

3D Batman Zoetrope

youtube.com/watch?v=AfS2kGO5lg8

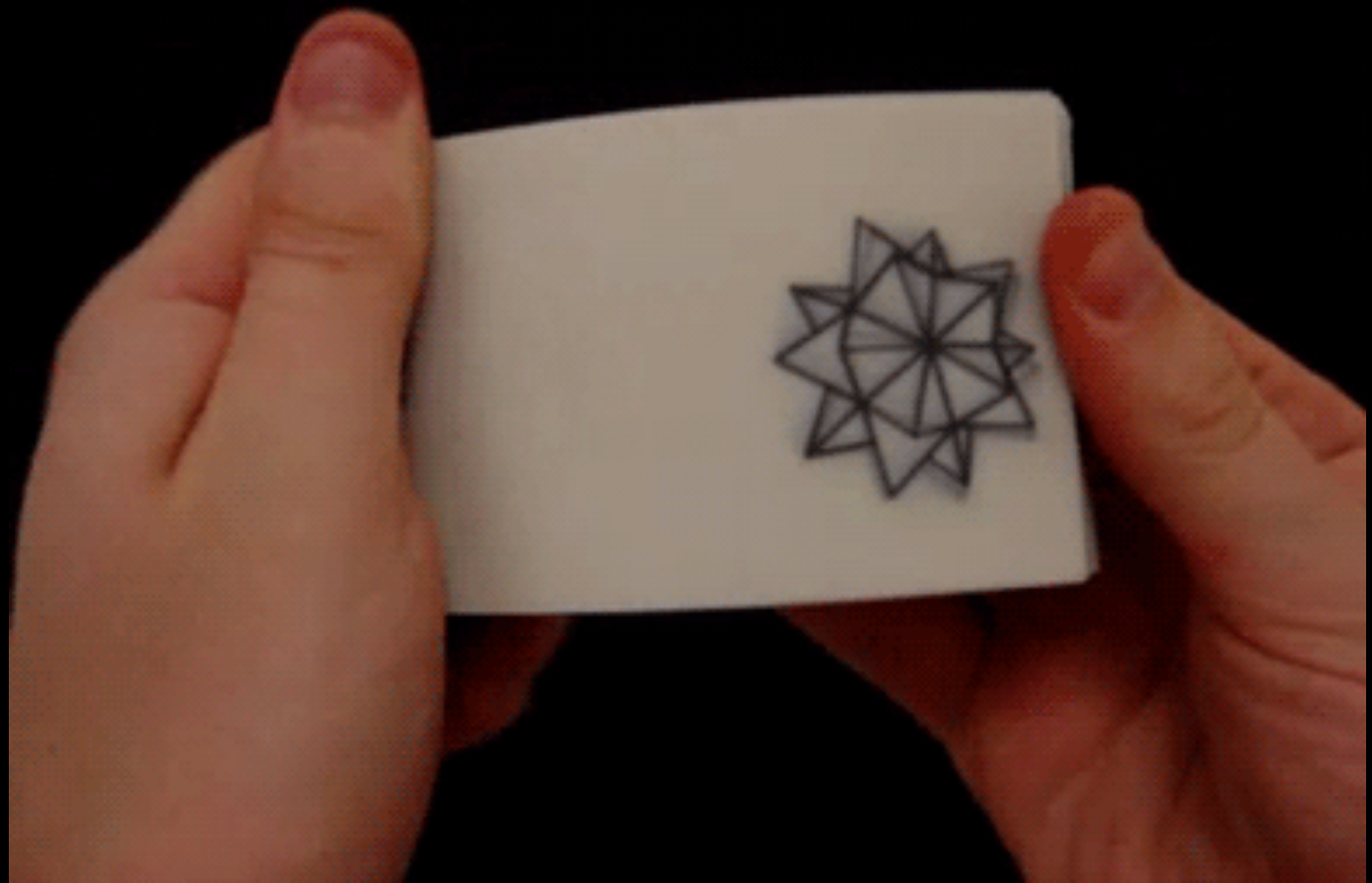
History of Animation

B and Q Train Zoetrope

youtube.com/watch?v=hvUKcos5vOY

History of Animation

Flip Book



History of Animation

Flip Book

youtube.com/watch?v=woUqTRBqtKQ

History of Animation

Photography and Film

youtube.com/watch?v=wGh6maN4l2I

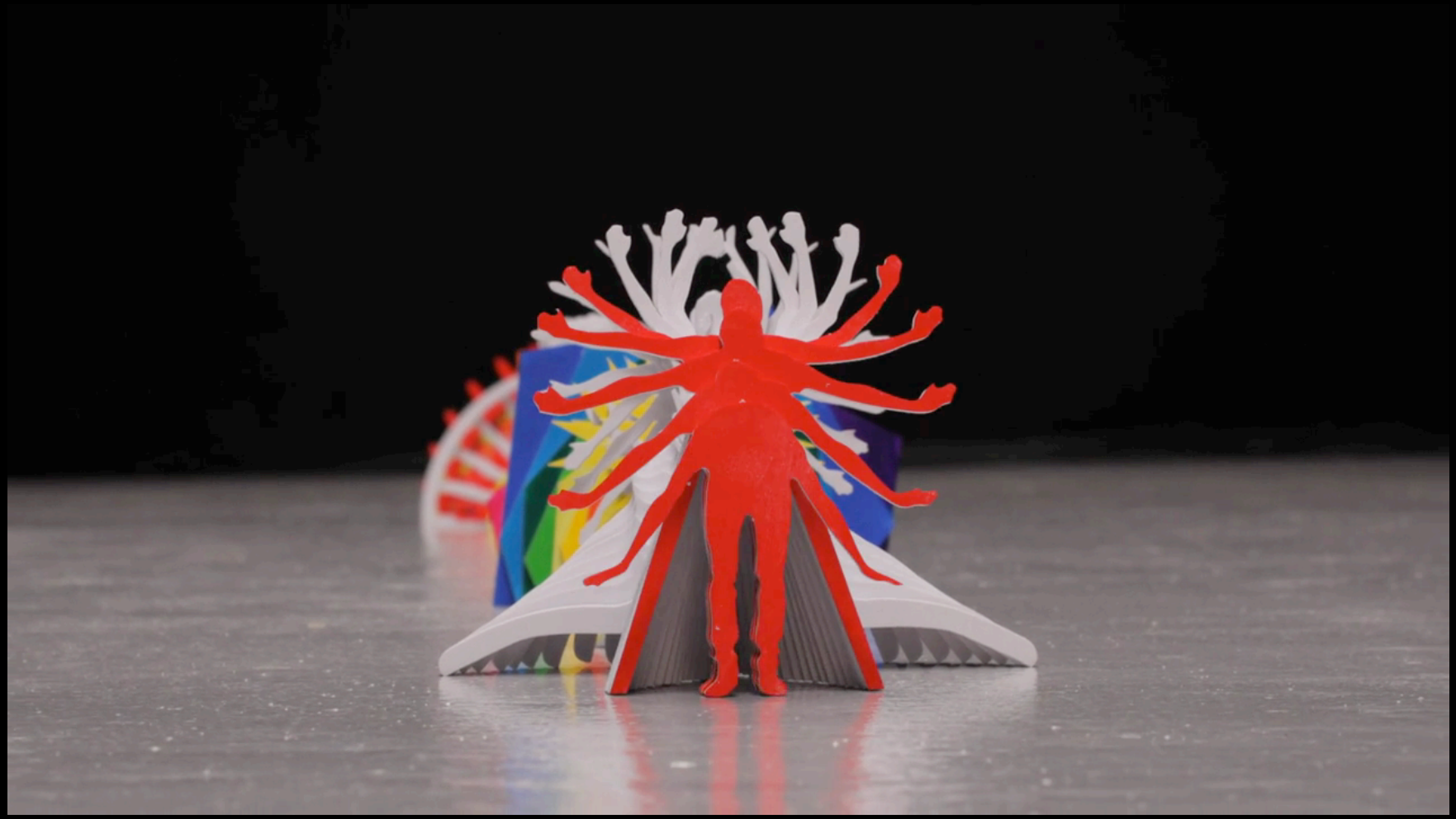
History of Animation

Stop Motion Animation

youtube.com/watch?v=orulaiIAHyo

History of Animation

Stop Motion Animation



youtube.com/watch?v=RpLBR38kVvY

History of Animation

Stop Motion Animation

White Stripes

Hardest Button to Button

Goyte

Somebody That I Used to Know

Caroline Rose

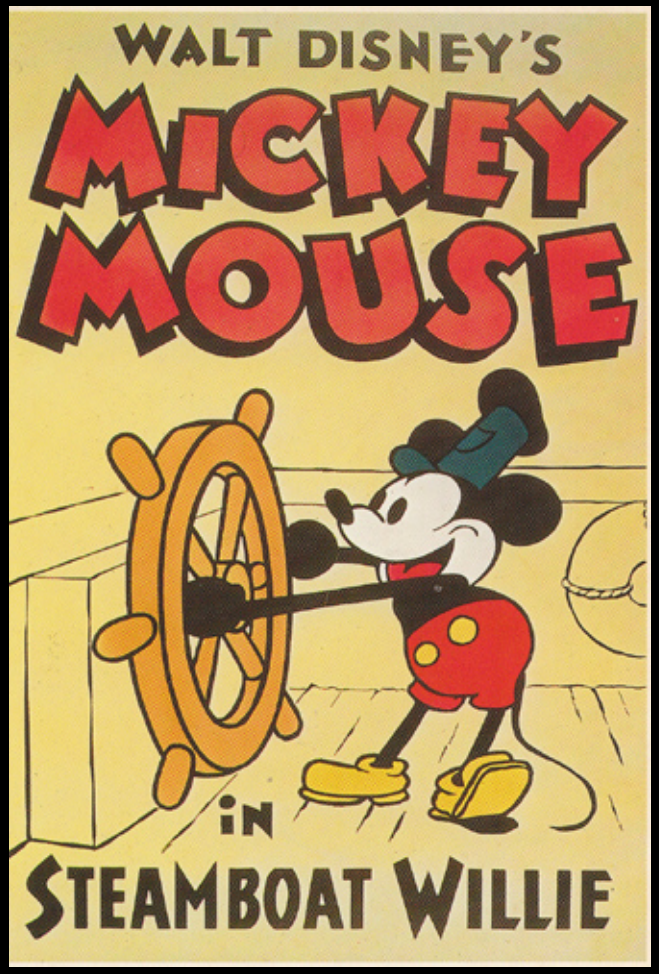
Blood on my Bootheels

History of Animation

Walt Disney

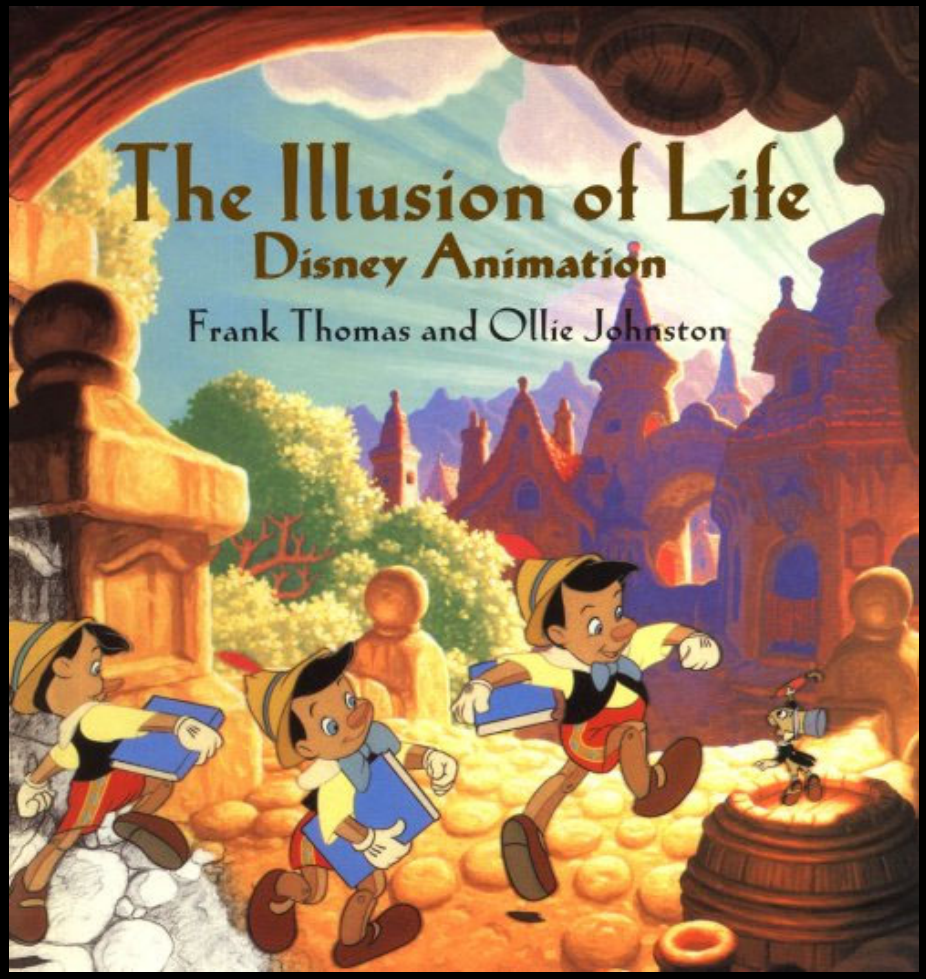
History of Animation

Walt Disney



History of Animation

Walt Disney



History of Animation

Walt Disney

youtube.com/watch?v=jn5OB12u8Pw

Motion Graphics

Psycho – Saul Bass

artofthetitle.com/title/psycho/

Motion Graphics

Catch Me If You Can – Kuntzel + Deygas

artofthetitle.com/title/catch-me-if-you-can/

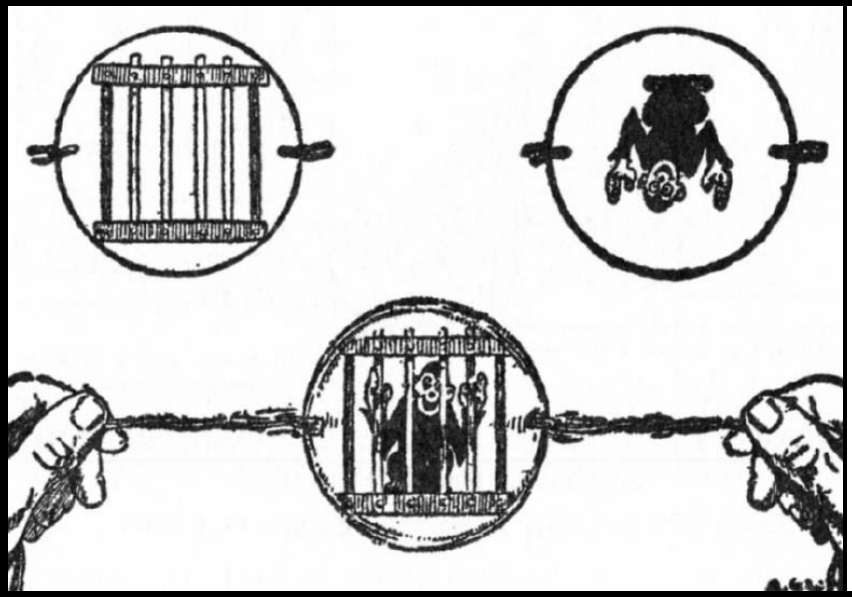
Motion Graphics

Casino Royale – Daniel Kleinman

artofthetitle.com/title/casino-royale-2006/

Motion Graphics

Same Concept / New Methods



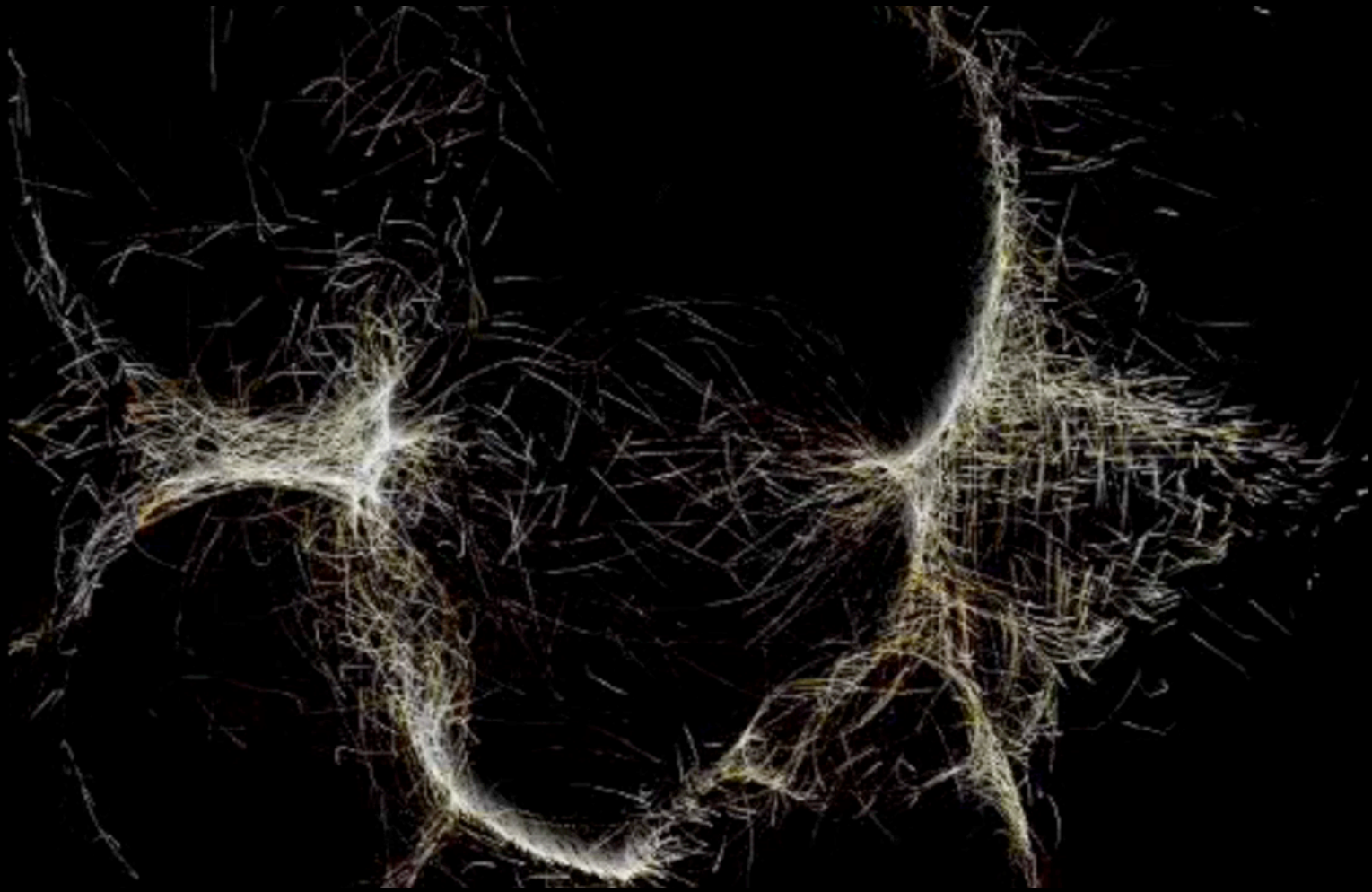
Motion and Code

John Maeda

vimeo.com/groups/aesthetics/videos/1866799

Motion and Code

Eno Henze



vimeo.com/1394370

Motion and Code

Casey Reas

vimeo.com/93565228

Motion and Code

Field

vimeo.com/28227109

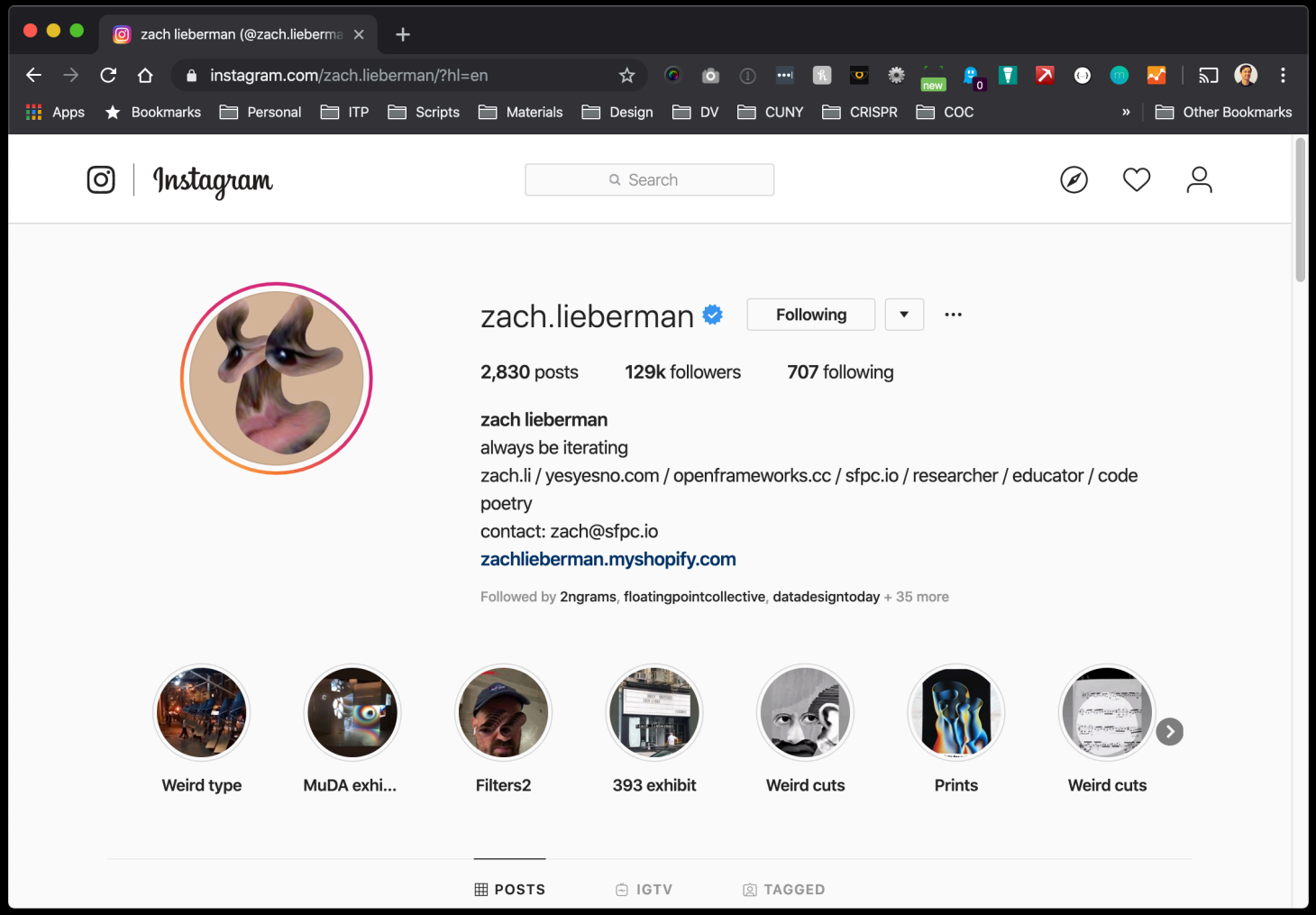
Motion and Code

Projection Mapping – NuFormer

vimeo.com/4238052

Motion and Code

Zach Lieberman



instagram.com/zach.lieberman/

Kinetic Forms

function draw() { … }

Motion Functions – frameRate()

Time Functions – millis(), hour(), minute(), second(), month(), day(), year()

Variables – Global Variables, displayWidth, displayHeight, windowWidth, windowHeight, frameCount

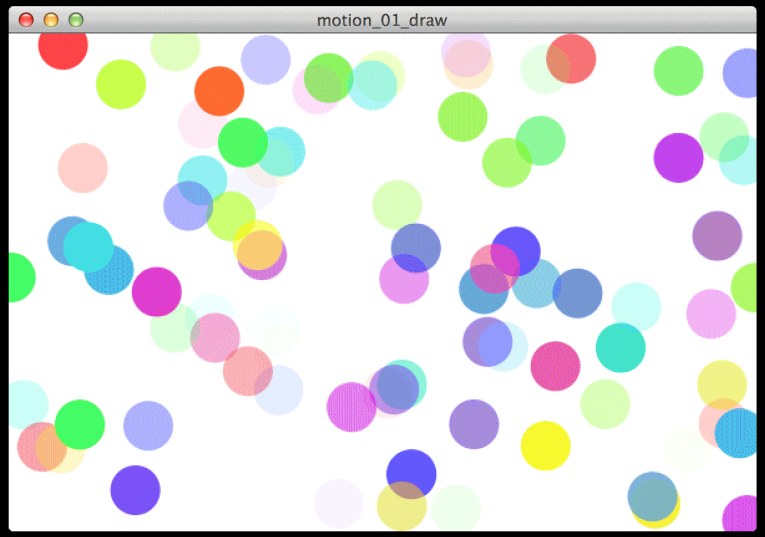
Motion in p5js – x = x + speed or x += speed

Classes and Arrays – var ball = new Array(40);

Kinetic Forms

function draw()

```
function setup() {
  createCanvas(600, 400);
  background(255);
  noStroke();
  colorMode(HSB, 360, 100, 100, 100);
}

// Endless loop similar to a for loop
function draw() {
  fill(random(0, 360), 80, 100, random(100));
  ellipse(random(0, width), random(0, height), 40, 40)
}
```



Kinetic Forms

function draw()

```
function draw() {
  …
}

for(var i = 0; i < forever; i++) {
  …
}
```

Kinetic Forms

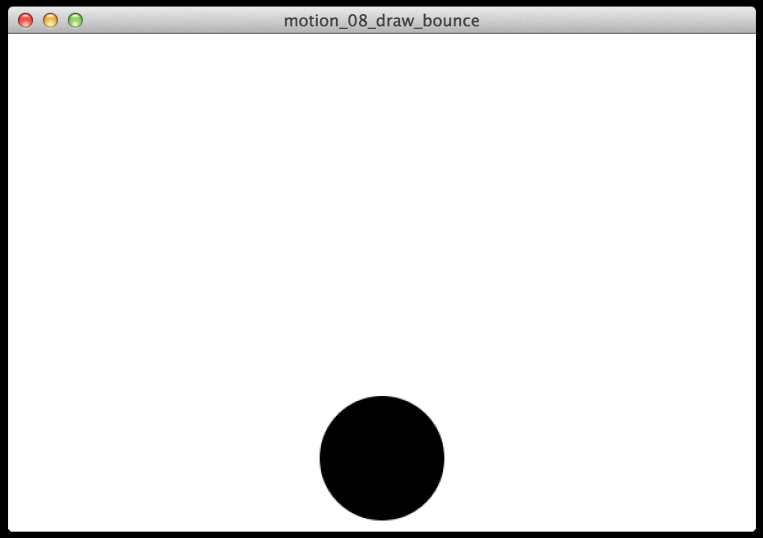
Motion

```
var w = 150; var h = 75; var x = -w; var speed = 3;

function setup() {
  createCanvas(600, 400);
  background(255);
  noStroke();
  colorMode(HSB, 360, 100, 100, 100);
}

function draw() {
  background(360);
  x = x + speed;
  fill(0);
  rect(x, height/2 - h/2, w, h);
  if (x > width) { x = -w; }
}
```

Kinetic Forms

Bounce

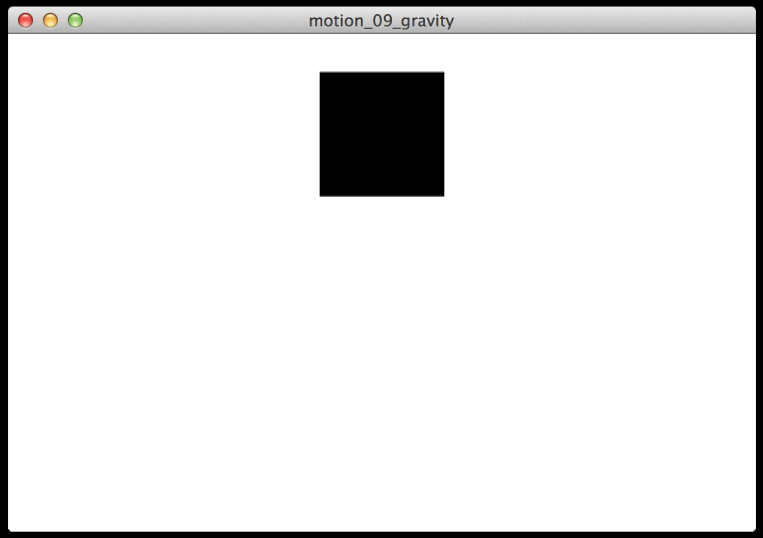
```
var d = 100; var y = d/2; var speed = 10;
function setup() {
  createCanvas(600, 400);
  background(255);
  noStroke();
  colorMode(HSB, 360, 100, 100, 100);
}

function draw() {
  background(360);
  if ((y > height - d/2) || (y < d/2)) {
    speed = speed * -1;
  }
  fill(0);
  ellipse(width/2, y, d, d);
  y = y + speed;
}
```



Kinetic Forms

Gravity

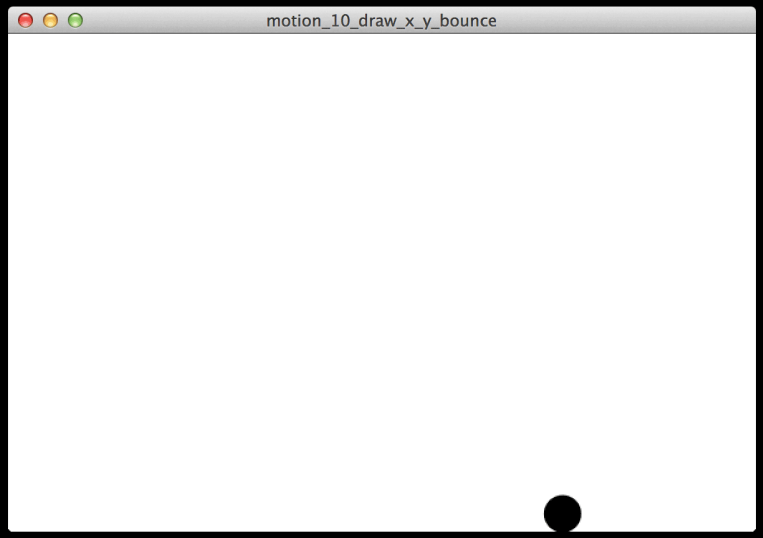
```
var s = 100; var y = s/2;
var speed = 5; var gravity = 0.2;
function setup() {
  createCanvas(600,400);
  background(255);
  rectMode(CENTER);
  noStroke();
}

function draw() {
  background(255);
  speed = speed + gravity;
  y = y + speed;
  if (y > height - s/2) {
          y = height - s/2;
          speed = speed * -0.95;
  }
  fill(0);
  rect(width/2, y, s, s);
}
```



Kinetic Forms

X and Y Movement

```
var d = 30;
var x, y, xspeed, yspeed;
function setup() {
  createCanvas(600, 400);
  noStroke();
  x = random(d, width - d);
  y = random(d, height - d);
  xspeed = 2; yspeed = 3;
}
function draw() {
  background(255);
  x = x + xspeed;
  y = y + yspeed;
  if ((x > width - d/2) || (x < d/2)) { xspeed = xspeed * -1; }
  if ((y > height - d/2) || (y < d/2)) { yspeed = yspeed * -1; }
  fill(0);
  ellipse(x,y,d,d);
}
```



Kinetic Forms

Multiple Objects with Classes and Arrays

```
function Circle(x, y, r, c, xSpeed, ySpeed) {
  this.drawCircle = function() {
    fill(c);
    ellipse(x, y, r, r);
  }
  this.moveCircle = function() {
    x = x + xSpeed;
    y = y + ySpeed;
    if (x > width-r/2 || x < r/2) { xSpeed = xSpeed * -1; }
    if (y > height-r/2 || y < r/2) { ySpeed = ySpeed * -1; }
  }
}
```

Kinetic Forms

Classes and Arrays

```
var circle = new Array(40);
var randomR, randomX, randomY;
function setup() {
  createCanvas(600, 400);
  noStroke();
  ellipseMode(CENTER);
  colorMode(HSB, 360, 100, 100);
  smooth();
  for (var i = 0; i < circle.length; i++) {
    randomR = random(10, 100); randomX = random(-5, 5); randomY = random(-5, 5);
    circle[i] = new Circle(width/2, height/2, randomR, color(random(360), 80, 100), randomX, randomY);
  }
}
function draw() {
  background(0);
  for (var i = 0; i < circle.length; i ++ ) {
    circle[i].drawCircle();
    circle[i].moveCircle();
  }
}
```

In Class Assignment

Using p5js design a clock.

Homework

1. Suggested Reading: pages 173 – 178 and 245 – 249 in Processing, by Casey Reas and Ben Fry
2. Choose one of your static designs from the last 7 weeks and use the draw loop to add some motion to it.
3. Put your p5js sketch in the Dropbox folder before our next class and be prepared to talk about it.

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