



# Generative Masks

Symmetry, Randomness, Interactivity?

COD 208 - Week 06 Class →



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# What is Mask?

Form of a Disguise / Concealment

Hides the identity

Cultural Meanings

Dates Back to Stone Age



Mask decorated with paint, Nahal Hemar Cave, Judean  
Desert, Pre-Pottery Neolithic B, 9000 years old.

(photo credit: Elie Posner/Israel Museum, Jerusalem)



North West Coast native American mask  
from.  
(Date unknown)

Wood (*Alnus rubra* or *Cupressus nootkatensis*),  
mineral pigments

Height: 10 in (25.4 cm)

Wolfgang Paalen, San Ángel and Tepoztlán,  
acquired in situ in 1939





# Characteristics of a Mask

## Variety of Materials

(wood, stone, clay, fibre, metals, ivory...)

## Costumes

(Costumes as complimentary items)

## Style

(Stylistic features depends on culture and the context)

## Purpose

Religious, social, funerary, therapeutic, festive, theatrical, etc...

Mask worn with costume: makishi dancer, a masked ancestral spirit who assists at initiation rites of the tribes of the northwestern region of Zambia. → [source](#)

# Today

## Art

Music industry, Traditional art scene, theaters

## Entertainment

Film industry, advertisement agencies, kid plays

## Festive

Traditional festivals, fairs, amusement parks

## Illegal Purposes

Assassination, Bank robbery

## Sports

Fencing (Eskrim), Kendo, Hockey



# Case Study

## *Generative Masks* by Shunsuke Takawo

### Development Process

- Daily Coding Practice
- Pixel Art & Symmetry
- 2D Primitives & Symmetry
- Character Form & Symmetry
- 3D Primitives & Symmetry
- 2D PRIMITIVES & SYMMETRY &  
BORDERING
- GENERATIVEMASKS





BREAK

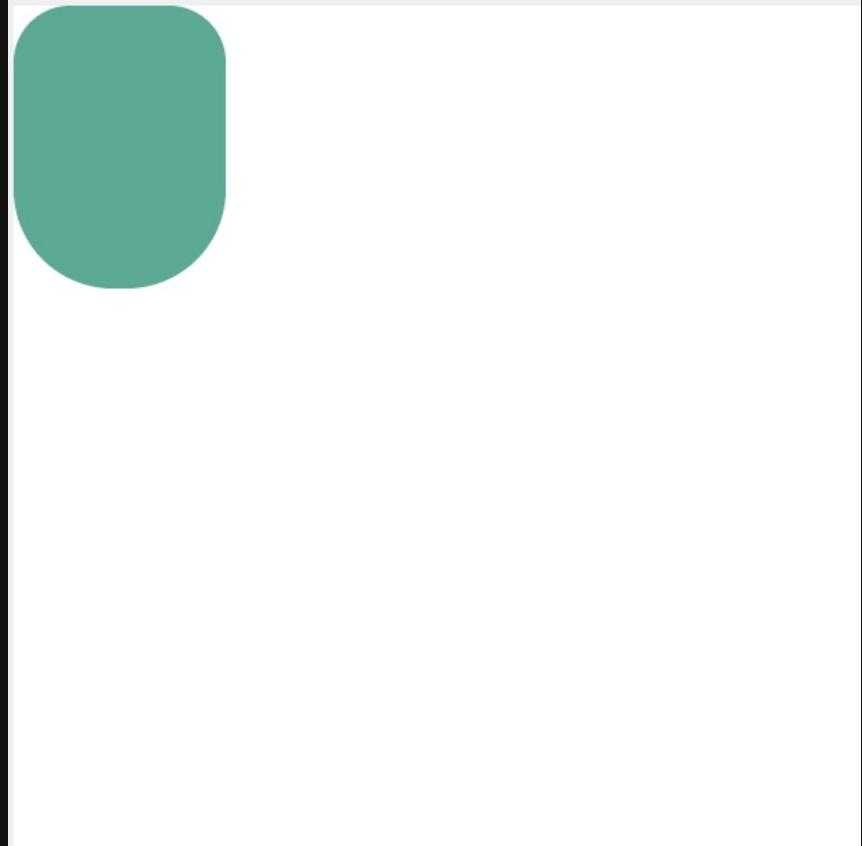
10 mins.

```
1 // Head variables
2 let headW=150;
3 let headH=200;
4 let xh = 0;
5 let yh = 0;
6
7 // Eyes variables
8 let ye;
9 let xe;
10 let we;
11 let he;
12
13 // Ears variables
14 let xEar;
15 let yEar;
16 let wEar;
17 let hEar;
18
19 // Nose variables
20 let xn;
21 let yn;
22 let wn;
23 let hn;
24
25 // Mouth variables
26 let xm;
27 let ym;
28 let wm;
29 let hm;
```

# Declare Variables

All of the varibales are declared globally outside of the `setup()` and `draw()` functions.

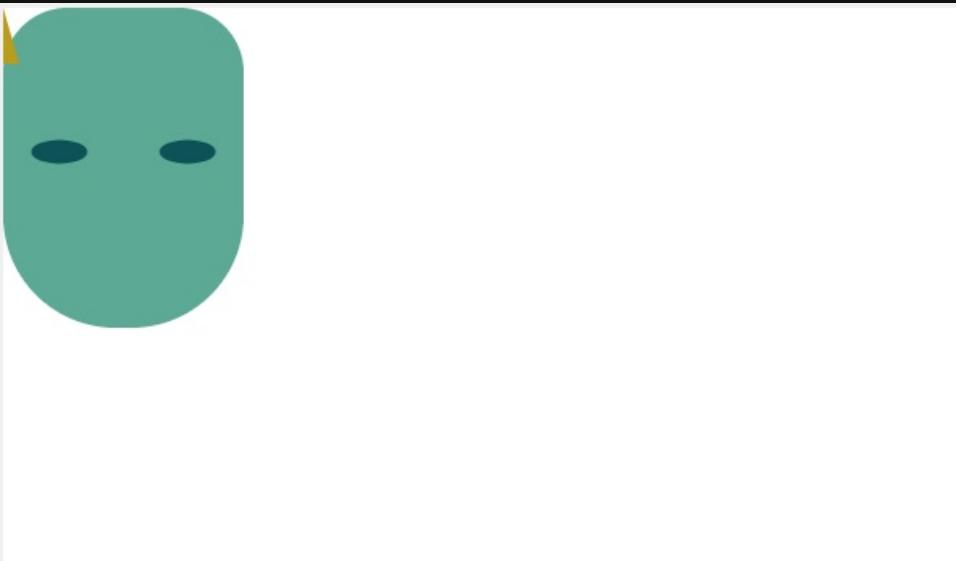
```
1 // Array to hold colors
2 let colors = ["#5AAA95", "#087F8C", "#095256", "#86A87E"];
3
4 function setup() {
5     createCanvas(600, 600);
6     background(255);
7     noLoop();
8 }
9
10 function draw() {
11     noStroke();
12
13     // Draw head
14     // fill the rect with the first color by setting index 0
15     fill(colors[0]);
16     // With additional 4 parameters
17     // 40:set roundness of the top-left corner of the rectangle
18     // 40:set roundness of the top-right corner of the rectangle
19     // 70:set roundness of the bottom-right corner of the rectangle
20     // 70:set roundness of the bottom-left corner of the rectangle
21     rect(xh, yh, headW, headH, 40, 40, 70, 70);
22 }
```



```
1 function draw() {  
2   noStroke();  
3  
4   // Draw head  
5   // fill the rect with the first color by setting index 0  
6   fill(colors[0]);  
7  
8   // With additional 4 parameters  
9   // 40:set roundness of the top-left corner of the rect  
10  // 40:set roundness of the top-right corner of the rect  
11  // 70:set roundness of the bottom-right corner of the rect  
12  // 70:set roundness of the bottom-left corner of the rect  
13  rect(xh, yh, headW, headH, 40, 40, 70, 70);  
14  
15  
16  // Draw left eye  
17  fill(colors[2]);  
18  
19  // define x and y of the eyes  
20  ye = yh + 90;  
21  xe = xh + 35;  
22  we = 35;  
23  he = 15;  
24  ellipse(xe, ye, we, he);  
25  
26  // Symmetry  
27  // Draw the right eye  
28  xe = xh + headW - 35;  
29  ellipse(xe, ye, we, he);  
30 }  
31
```



```
1 // Draw Nose  
2 // set color  
3 fill(colors[4]);  
4 wn = 20;  
5 hn = 35;  
6 // lets make the nose from a customshape  
7 beginShape();  
8 vertex(0,0);  
9 vertex(-wn/2,hn);  
10 vertex(wn/2,hn);  
11 endShape();
```



## Drawing The Nose

We write the code on the left in `draw()` function. To make it on top of the head, we insert the codes under section where we draw the right eye.

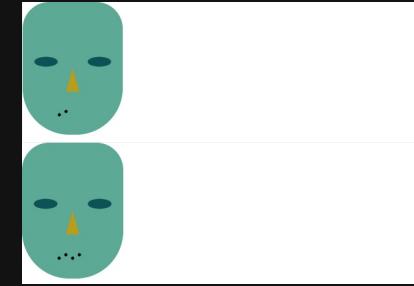
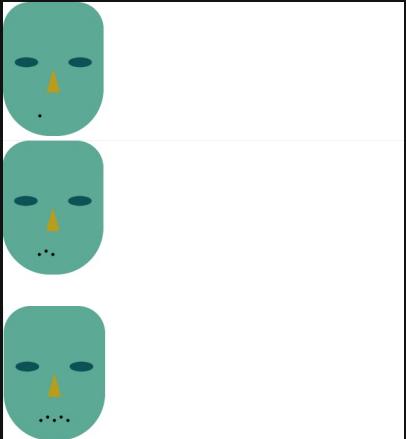
```
1 // Draw Nose  
2 // set color  
3 fill(colors[4]);  
4 wn = 20;  
5 hn = 35;  
6 // lets make the nose from a customshape  
7  
8 // move the object between push() and pop() on the canvas  
9 // x position of the nose = halft of the width of the head.  
10 xn = headW / 2;  
11  
12 // set the y position of the nose graphics  
13 yn = 100;  
14  
15 //add push to use translate  
16 push();  
17   translate(xn, yn);  
18   beginShape();  
19     vertex(0,0);  
20     vertex(-wn/2,hn);  
21     vertex(wn/2,hn);  
22   endShape();  
23 pop();
```

# Positioning The Nose

To display the nose at the center of the mask, we can use `translate(x_position, y_position)`



```
1 // Draw mouth points  
2 // These points will be removed after we are done with the  
3 // positions.  
4 // We create these points for debugging purposes.  
5 fill(0);  
6 circle(55, 170, 5); // 1st point coords: x: 55, y: 170  
7 circle(65, 165, 5); // 2nd point coords: x: 65, y: 165  
8 circle(75, 170, 5); // 3rd point coords: x: 75, y: 170  
9 circle(85, 165, 5); // 4th point coords: x: 85, y: 165  
10 circle(95, 170, 5); // 5th point coords: x: 95, y: 170
```



# Drawing the Mouth

- To draw mouth we can use variety of techniques.
- Let's use beginShape() and endShape() to create the mouth.
- First create the points to form the mouth.
- You can use small circle in order to determine the specific curve positions via trial-error practice...
- Attention to the x and y position of each points.
- I want to create a curve that looks like a wave.
- Next we will disable these circles because we know the parameters to draw curve for the mouth.



This tutorial is a part of the creative coding class for COD 208 course at Ozyegin University.

Let's start by creating variables for facial features

- Line 0-30
- Line 34: colors array for the mask
- Head background -> line 43-53

### mySketch

```
1 // Head variables
2 let headW=150;
3 let headH=200;
4 let xh = 0;
5 let yh = 0;
6
7 // Eyes variables
8 let ye;
9 let xe;
10 let we;
11 let he;
12
13
14 // Ears variables
15 let xEar;
16 let yEar;
17 let wEar;
18 let hEar;
```

# Assignment

1. Review the [ml5.org](https://ml5.org) website.
2. Skim the article on Medium webpage → [link](#)
3. Run the following code on p5js editor.
4. Embed your mask code into the program. Whenever the app detects face, make it display your mask on the user.