

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

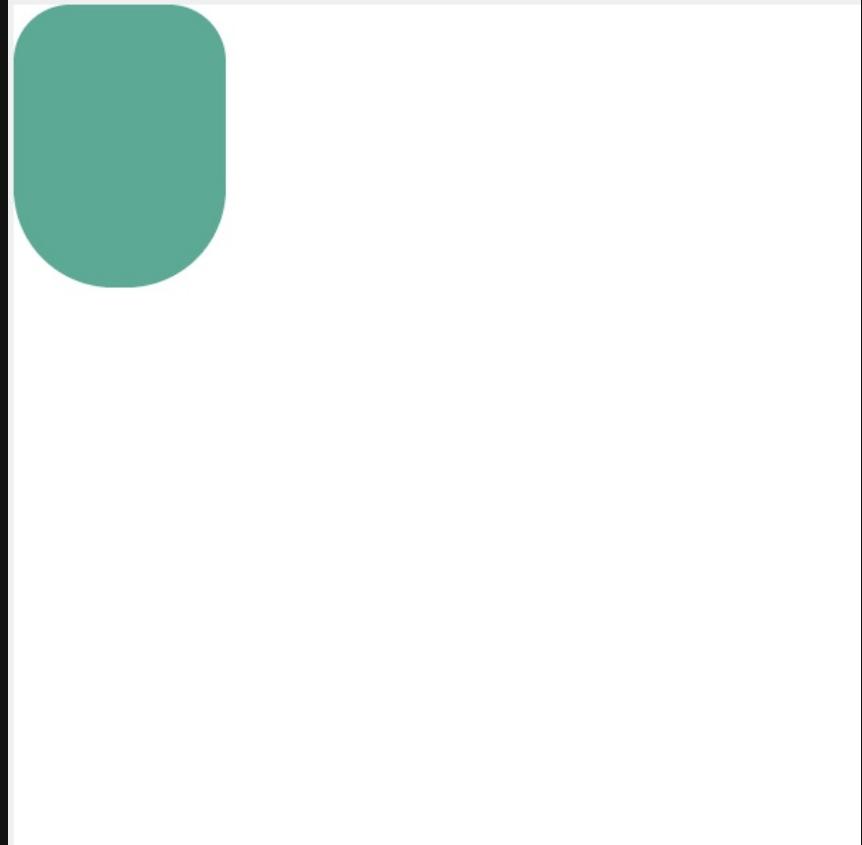
10 mins.

```
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.

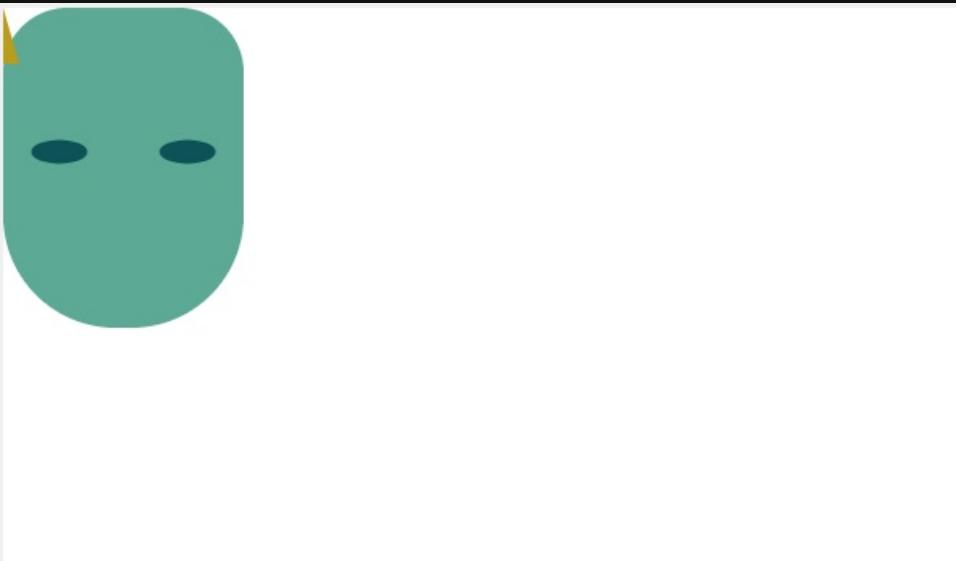
```
1 // Array to hold colors
2 let colors = ["#5AAA95", "#087F8C", "#095256", "#86A87E"];
3
4 function setup() {
5     createCanvas(600, 600);
6     background(255);
7     noLoop();
8 }
9
10 function draw() {
11     noStroke();
12
13     // Draw head
14     // fill the rect with the first color by setting 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   // With additional 4 parameters  
8   // 40:set roundness of the top-left corner of the rect  
9   // 40:set roundness of the top-right corner of the rect  
10  // 70:set roundness of the bottom-right corner of the rect  
11  // 70:set roundness of the bottom-left corner of the rect  
12  rect(xh, yh, headW, headH, 40, 40, 70, 70);  
13  
14  
15  // Draw left eye  
16  fill(colors[2]);  
17  // define x and y of the eyes  
18  ye = yh + 90;  
19  xe = xh + 35;  
20  we = 35;  
21  he = 15;  
22  ellipse(xe, ye, we, he);  
23  
24  // Symmetry  
25  // Draw the right eye  
26  xe = xh + headW - 35;  
27  ellipse(xe, ye, we, he);  
28 }
```



```
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.

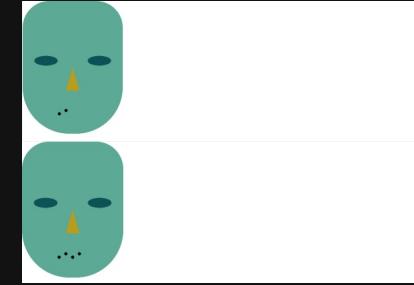
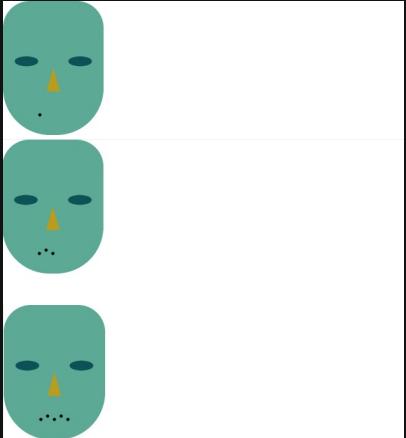
```
1 // Draw Nose  
2 // set color  
3 fill(colors[4]);  
4 wn = 20;  
5 hn = 35;  
6 // lets make the nose from a customshape  
7  
8 // move the object between push() and pop() on the canvas  
9 // x position of the nose = halft of the width of the head.  
10 xn = headW / 2;  
11  
12 // set the y 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;
```

Random

The end result is already set since it follows the rules of inputting numbers and code.



Randomness in Art & Design

George Nees

Frieder Nake

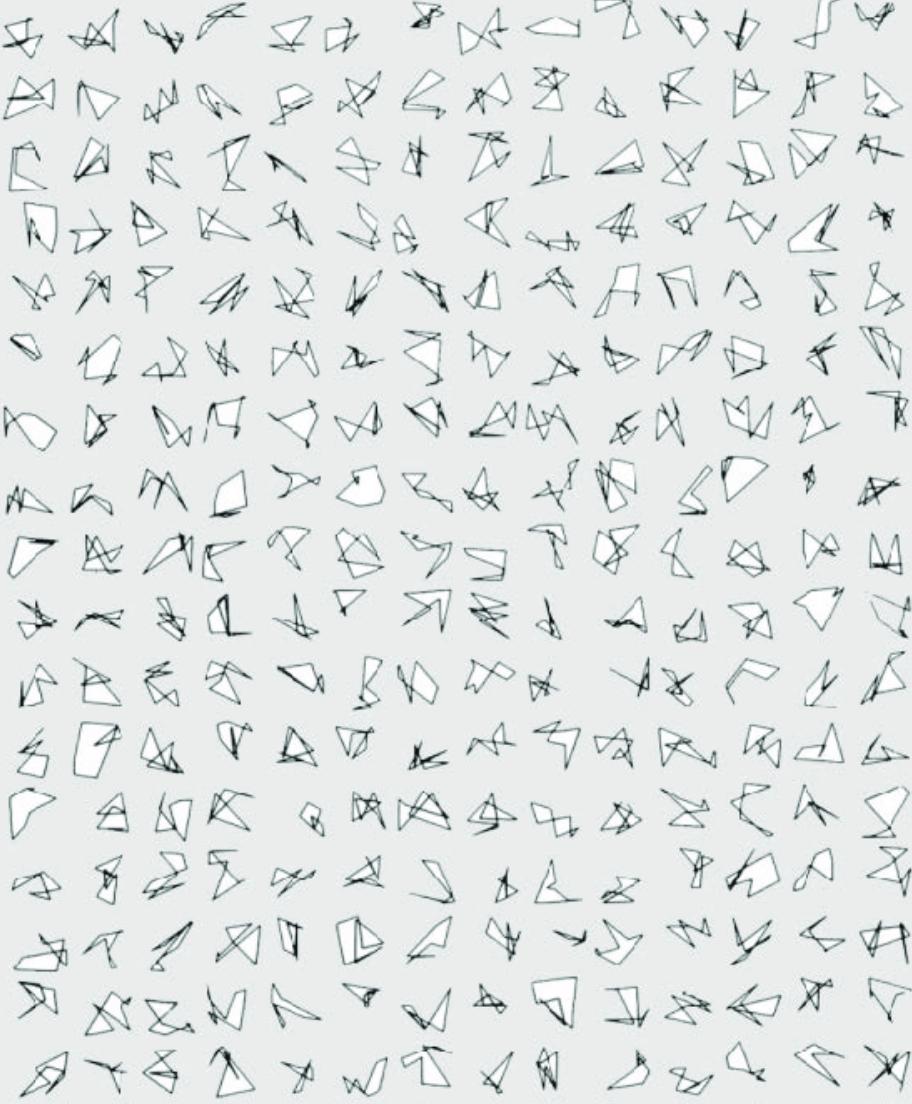
George Nees

A. Michael Noll

Amadeus Mozart

Iannis Xenakis

Image Credit: George Nees, Achtecke, 1965, polygons of 8 vertices placed into a regular grid. The random variation of placing the vertices inside a small drawing area demonstrates a wild variety of simple shapes. The original drawing only shows the black lines of the polygons on white ground.



LISTS
& NOTES

Assignment

1. Review the [ml5.org](#) website.
2. Skim the article on Medium webpage → [link](#)
3. RAR → ead, sk a Question, eply a question.
4. Run the following [code](#) on p5js editor.
5. The instructor's [code](#)
6. Embed your mask code into the program. Whenever the app detects face, make it display your mask on the user.