

Artist Name: Yuheng Chen

Title: Warp 2.0

Medium: Generative Drawing and Motion Tracking

Size: 10 ft x 10 ft x 1/8 in.

Artist Statement:

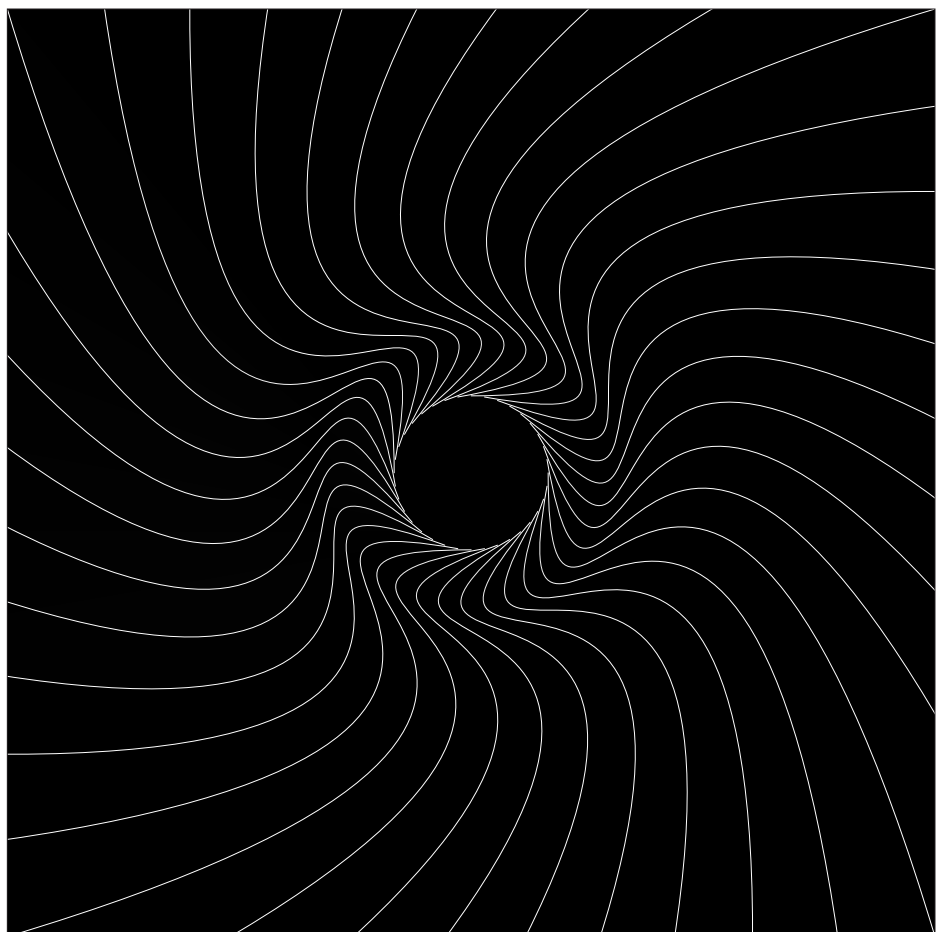
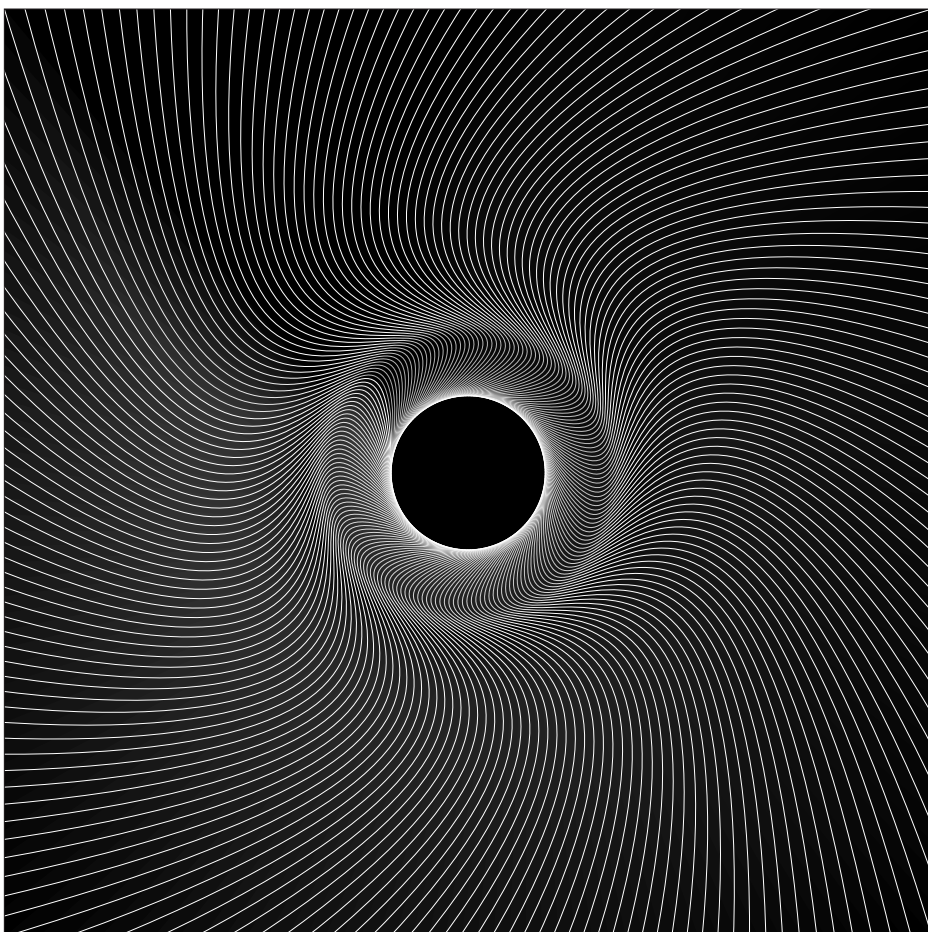
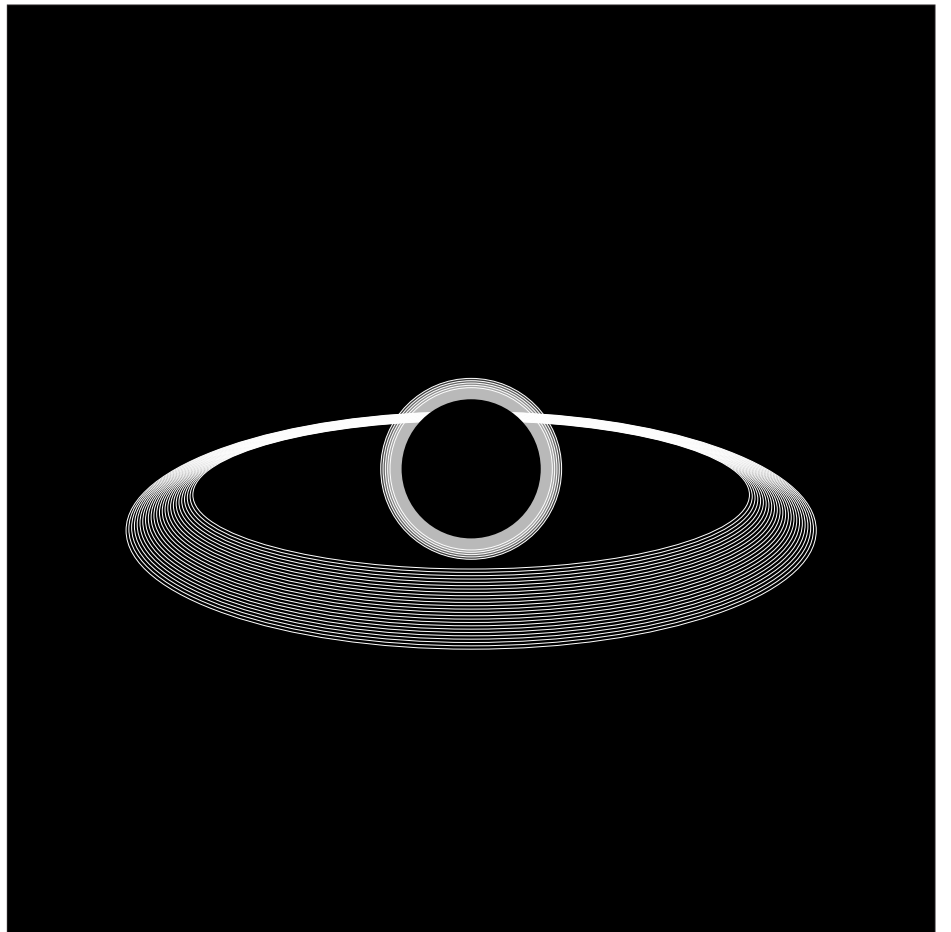
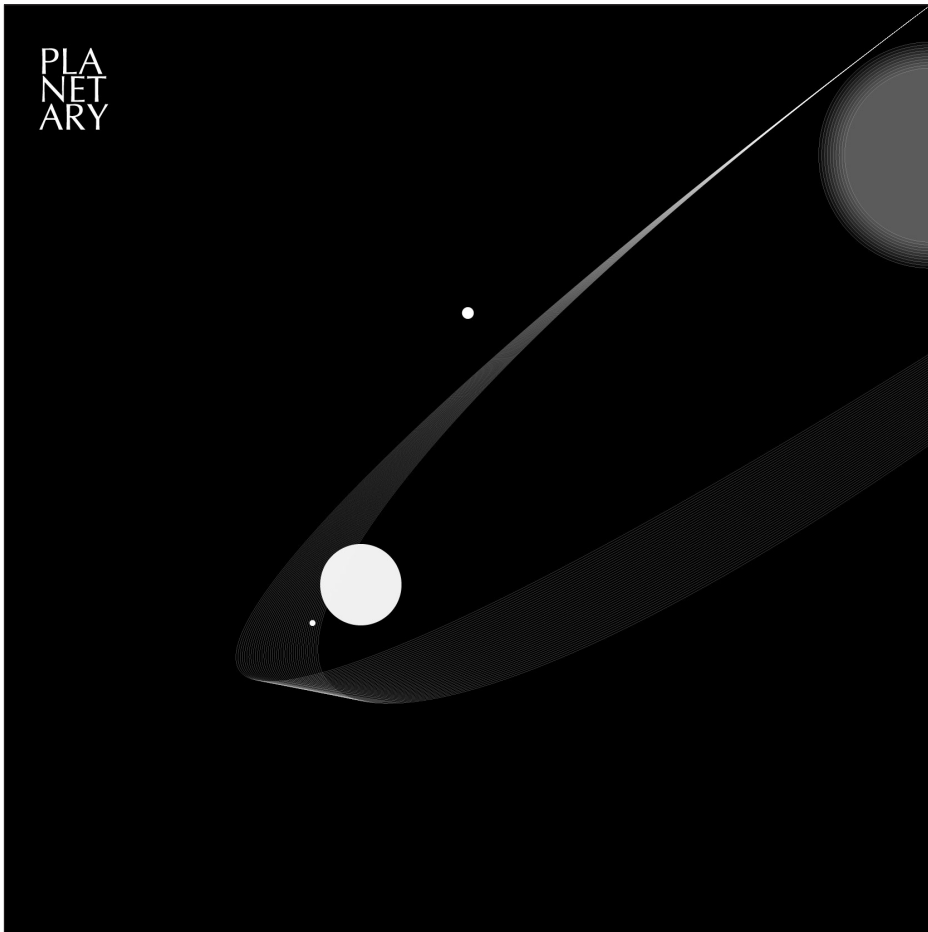
Warp 2.0 is the next iteration of my processing drawing, Warp 1.0. It explores the aesthetic of code-driven composition and creates an immersive experience between the viewer and the piece. Influenced by cinematic depictions of black holes, Warp 2.0 translates the intriguing object into a three dimensional experience. A rotating celestial body that bends space around it. As the viewer moves towards it, the visual effect becomes more and more engaging. The interactive experience invites the viewer to ponder the beauty and mystery of the cosmos and their relationship with it.

Technical Statement:

I constructed this project in Processing, a Java-based programming language by Casey Reas and Ben Fry. On top of Processing, I embodied a motion-tracking library named Open Kinect for Processing by Daniel Shifman and Thomas Sanchez, enabling the use of Microsoft Kinect Sensors for proximity detection and motion tracking. With the above tools and technologies, I created this interactive installation.

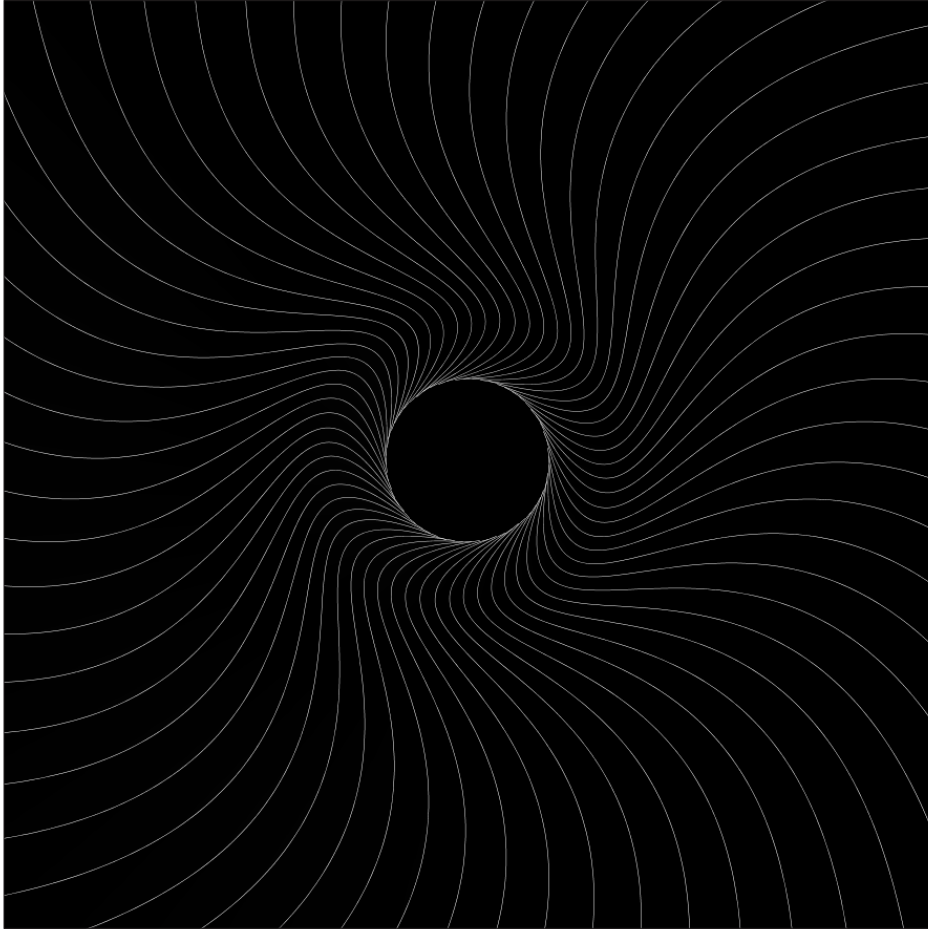
1. Computational Drawings

Sketches that led to this project. The bottom are initial sketches of Warp. I explored the composition by changing the number of curves that forms the warp.

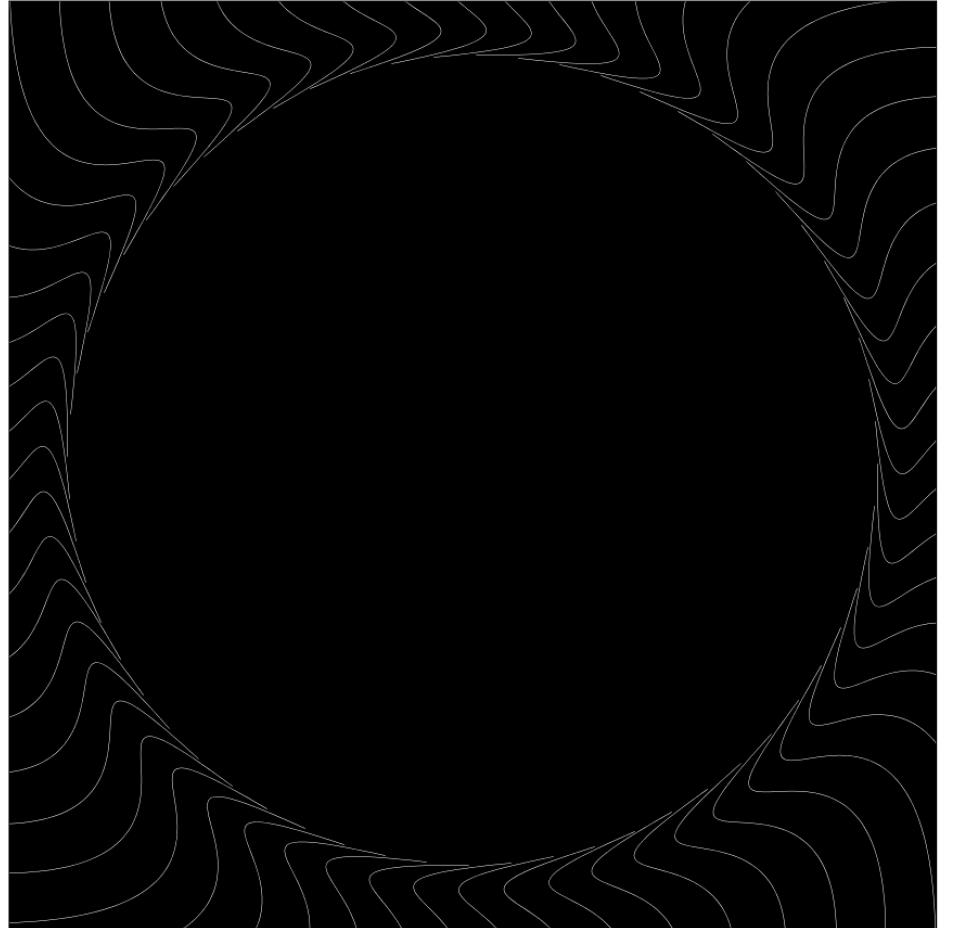
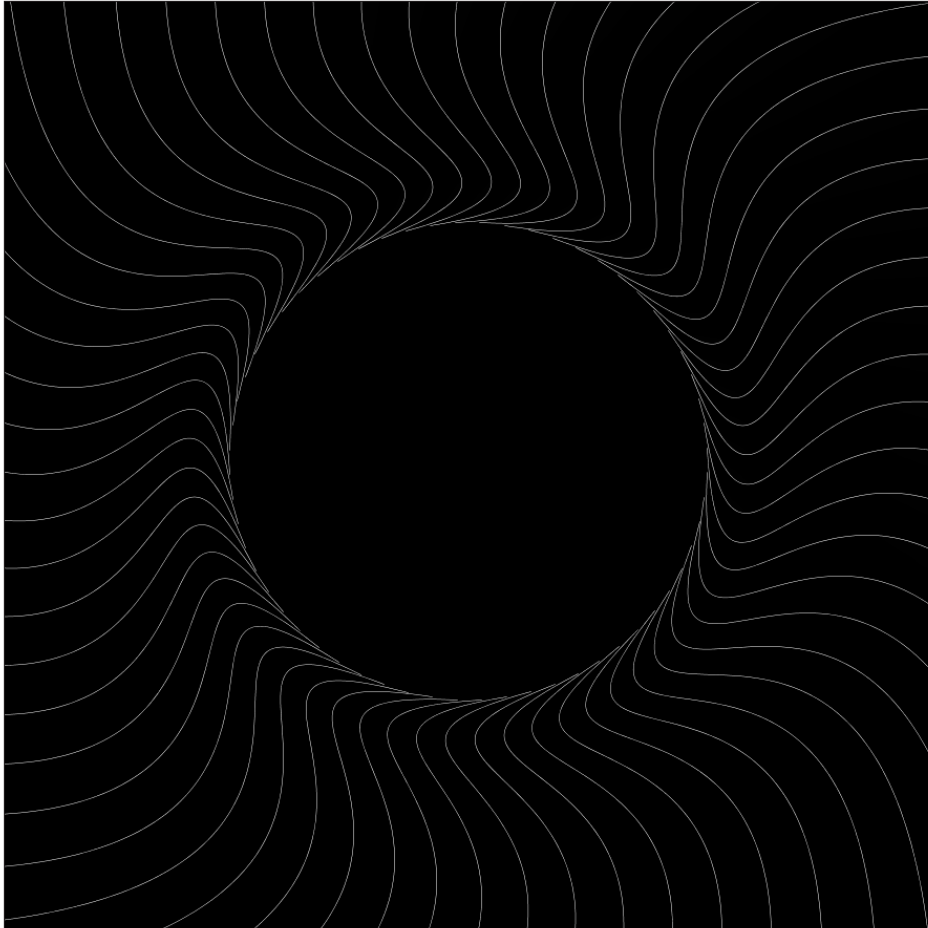


## 2. Proximity Detection

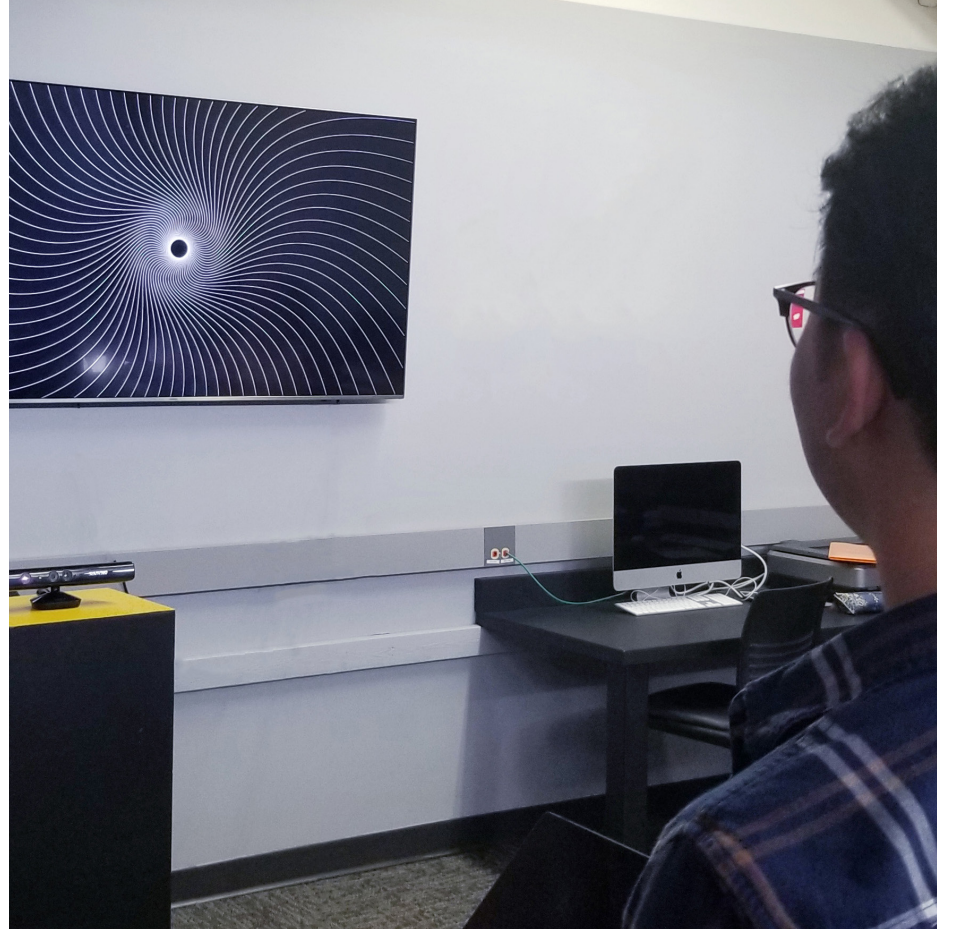
The following are screenshots of the piece as the viewer moves closer to it.



```
void draw() {  
  // calculate depth  
  PImage img = Kinect.getDepthImage();  
  float prox = -1;  
  int skip = 20;  
  float sum = 0;  
  int count = 0;  
  // Collect max prox  
  for (int x = 0; x < img.width; x+=skip) {  
    for (int y = 0; y < img.height; y+=skip) {  
      int index = x + y * img.width;  
      float b = brightness(img.pixels[index]);  
      if (b > 0 && b > prox) {  
        prox = b;  
      }  
  
      if (prox > far || prox < near){  
        count++;  
        sum += prox;  
      }  
    }  
  }  
  
  // update depth of field  
  if (prox > near) {  
    near = prox;  
  }  
  if (prox < far) {  
    far = prox;  
  }  
}
```



### 3. Physical Interaction



#### 4. Gallery Plan

For ideal result, project this piece onto a wall in a dark white cube with enough depth. The space should be rectangular. The installation is intended to interact with one viewer at a time.

