Speculative Design | Interaction Design

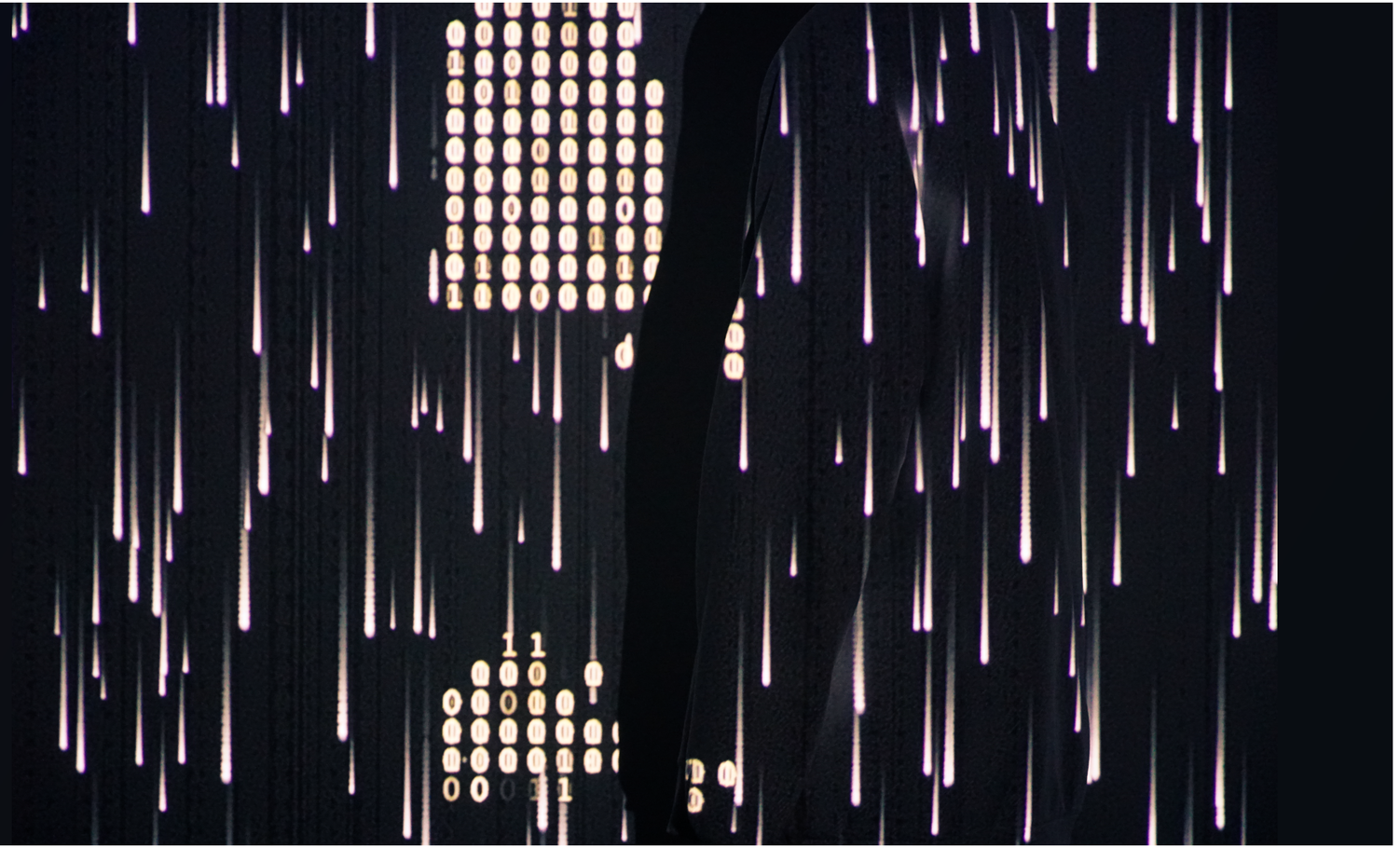
DRIVEN DRIZZLE

Let’s go through the drizzle !

Individual Work
2021.12
Overall Displayed Dimensions Variable

The project is an interactive design that aims to experiment with modern digital technology, combining auditory, visual, and tactile experiences to stimulate audiences to think about the entropy reduction of life.

https://youtu.be/pjeXKgC1Xzg



INSPIRATION

> **Night in the rain, filar silk woven the emotions of the poet.**

The rain is like an invisible string, always evoking thoughts, someone reminiscing, someone being at peace, someone being moved by it. **What is the connection between rain and emotion?**

White Noise The sound of rain is a kind of white noise, which filters and disperses noise and helps reduce distraction.

Cooling The relatively cooler temperatures on rainy days make people sober and think critically, and people's perceptions of themselves are less biased.

Vitamin D3 Rain affects the production of vitamin D3 in the skin, which reduces the level of 5-hydroxytryptamine synthesis in brains thus leading to depression.

Humidity High humidity levels on rainy days reduce the concentration of thyroxine and adrenaline, making people less energetic and less motivated.

SAD Rainy days tend to cause seasonal affective disorder, with symptoms similar to many emotional and psychological problems.

Low Air Pressure Low air pressure affects the body's oxygen supply, causing depression and feelings of discomfort.

Negative Air Ion Lightning and rain produce large amounts of negative ions, which are beneficial to the functioning of the body's systems and have a comforting and hypnotic effect.

DESKTOP RESEARCH

15 - 25 mph
standard raindrop radius

1000 μm
standard raindrop radius

0.004 mg
the smallest mass of a raindrop

Force Analysis
Force Analysis
Force Analysis
Force Analysis

ENTROPY OF THE RAINFALL REGION

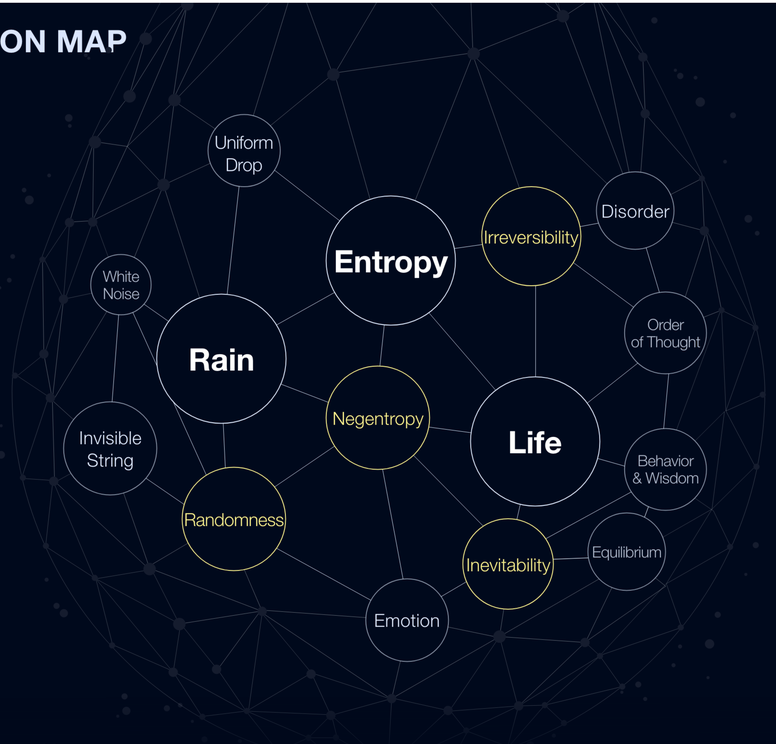
In the vertical space of the rainfall area, the raindrops gather material around them by regulating their own internal and external equilibrium forces, allowing the pressure difference to be balanced, which indirectly reduces the density of material in a certain area, thus reducing the entropy in this area and ensuring a slow rate of fall.

Entropy
a description of the degree of disorder inherent in a system

Raindrops
do not fall at an ever-increasing rate depending on their height but seek to order themselves in a disorderly external environment.

What if we redesign the rain with entropy?

ASSOCIATION MAP



LEGEND

point

keyword

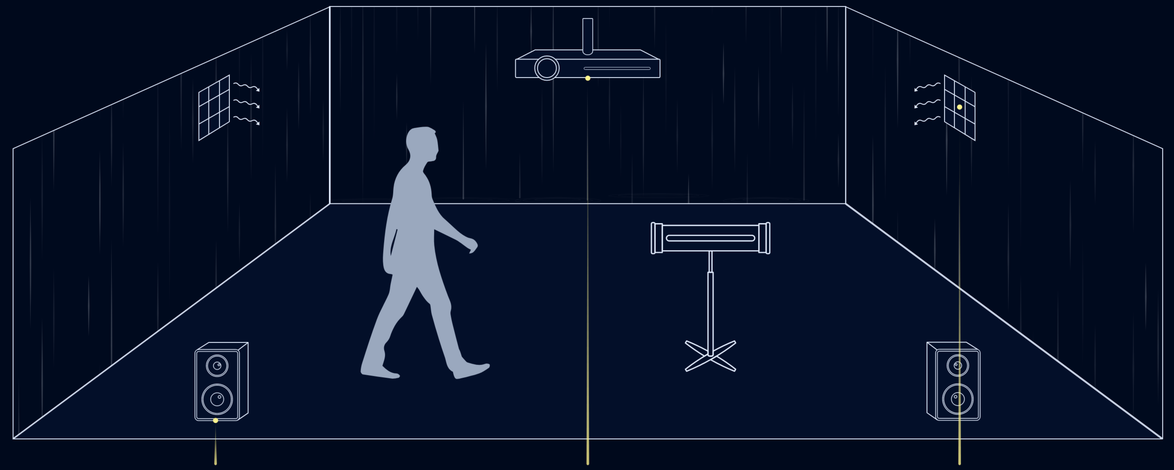
"Life feeds on negative entropy!"

——Erwin Schrödinger <What Is Life?>

IDEATION

Driven Drizzle

Driven Drizzle inspires participants to think about the social phenomenon of stagnation due to pressures in the context of the epidemic by using rains that are pursuing their equilibrium after fighting against multiple pressures.



Auditory

Loudspeaker Box

With several speakers generating surround sound, a realistic rain-sounding environment is created for the audience.

Visual

Projector + Kinect

Rain animations are shown by the projector and figures are captured by the Kinect for visualization.

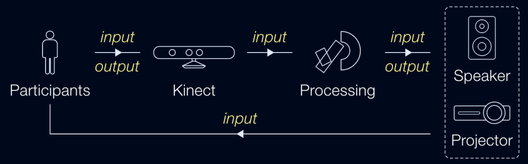
Tactile

Air Conditioner

The air conditioner lowers the temperature, creating a vivid physical environment for visitors and aiding reflection.

USER INTERACTION

Driven Drizzle is an interactive design that aims to experiment with modern digital technology, combining auditory, visual, and tactile immersive experiences to spark participants' thinking.



○ Participants ⊡ Kinect □ Processing ◇ Speaker + Projector

① **Participants engage in interaction.**
Participants are captured by the Kinect.

② **The Kinect transmits signals to the Processing.**
The Kinect is connected to a computer with Processing and the visualization of the figure after the recognition is set up.

③ **Visualisation and audio transmit to the devices.**
The visualization is processed by Processing and the corresponding audio is transmitted to the speakers and projector.

④ **Participants are provoked to think.**
The atmosphere created by visualization and sound allows participants to immerse themselves in the life of rain.

PROTOTYPE

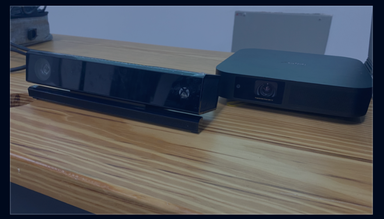
DEVICE TESTING:

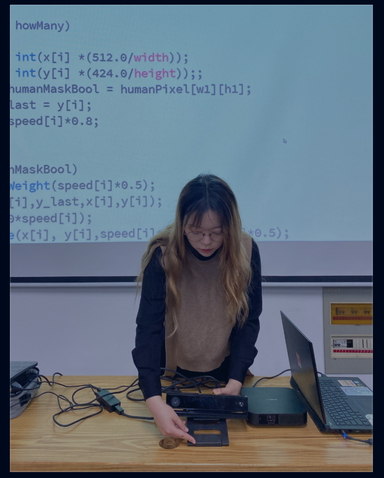
Adjust the angle of the projector & Kinect.

Test the capture effect of Kinect.

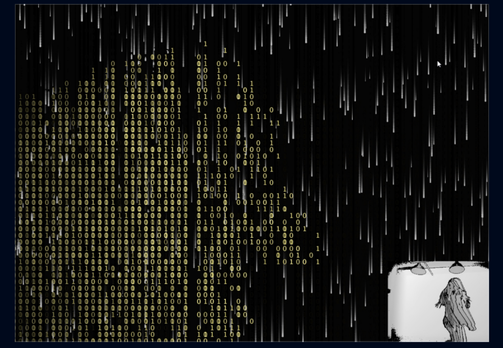
Optimize the visualization of the processing.

PROTOTYPE





TESTING



CODING

```
//rain
fill(0,1);
rect(0,0,width, height);
stroke(200);
strokeWeight(1);

int i = 0;
while (i < howMany)
{
  int w1 = int(x[i] *(512.0/width));
  int h1 = int(y[i] *(424.0/height));;
  boolean humanMaskBool = humanPixel[w1][h1];
  float y_last = y[i];
  y[i] += speed[i]*0.8;


  if(!humanMaskBool)
  { strokeWeight(speed[i]*0.5);
    line(x[i],y_last,x[i],y[i]);
    fill(50*speed[i]);
    ellipse(x[i], y[i],speed[i]*0.5,speed[i]*0.5);
  }
```

```
pg.beginDraw();
pg.background(0,20);

for (int x = 0; x < gridX; x++){
  for (int y = 0; y < gridY; y++){
    int front=-1;
    for(int k=0;k < gridY; k++)
    {
      if(matrix[x][k])
      {
        front=k;
        break;
      }
    }

    if (front<0) continue;

    float frontProximity = max(trailLen-front+y, 0)/trailLen;

    //map to human
    int w1 = int(textSpacing*x *(512.0/width));
    int h1 = int(textSpacing*y *(424.0/height));

    boolean humanMaskBool = humanPixel[w1][h1];
    pg.textSize(textSize);
    if (frontProximity > 0 && humanMaskBool)
    {
      //pg.fill(0,255*frontProximity,0);
      pg.fill(255,244,143);  //#FFF48F

      //var c = String.fromCharCode(random(33,127));
      //String c = str(char(byte(random(48,50))));
      String c = str(char(byte(charList[int(random(0,5))])));
      pg.text(c, x*textSpacing, (y+1)*textSpacing);
    }
    if (y*textSpacing > height-40) break;
  }
}
pg.endDraw();
image(pg, 0, 0);

image(kinect.getDepthMaskImage(), width-320, height-240, 320, 240);
```

Driven Drizzle

In ***Driven Drizzle***, Lynn uses Kinect and Processing to reconstruct rain and human figures.

The project is based on stagnation under epidemic pressure, with every stage being unique. She invites the audience to participate directly in the interactive design, from which the rain is felt, inducing associations with themselves and with entropy reduction.