

Chinese Character

PROJECT TYPE:
IMMERSIVE INSTALLATION

DATE:
JUN. 2022- OCT. 2022

興字

Background

Together with Arabic, Japanese and Korean, Chinese is rated as one of the most difficult languages to learn for people whose native language is English. To many of the none native Chinese speakers and the second generation of the oversea Chinese immigrants, learning Chinese is a tough experience.



Inspiration



A few years ago, at the Museum of Fine Art in Boston, I taught the Chinese characters “pick(采)” to a group of Americans. They learn this word(character) quickly and keep teaching this to the other visitors even after I leave the exhibition hall. While this learning process went smoothly and successfully, learning Chinese as a foreign language has a high-level difficulty to none native speakers and even Chinese immigrants. Meanwhile, Chinese culture and Chinese Characters are submerged in a political symbol that China represents.

Formation of the Characters

Pictograms

Stylised drawings of the objects they represent. These are generally among the oldest characters. Here is a example of the Character of “mountain”.



Compound ideographs

Compound ideographs, also called associative compounds or logical aggregates, are compounds of two or more pictographic or ideographic characters to suggest the meaning of the word to be represented.



Rebus (phonetic loan)

characters that are "borrowed" to write another morpheme which is pronounced the same or nearly the same.



Simple ideograms

Express an abstract idea through an iconic form, including iconic modification of pictographic characters.



Phono-semantic compound

These form over 90% of Chinese characters.They were created by combining two components:

a phonetic component on the rebus principle, that is, a character with approximately the correct pronunciation.

a semantic component, also called a determinative, one of a limited number of characters which supplied an element of meaning. In most cases this is also the radical under which a character is listed in a dictionary.

采: a plant have red fruits.
艹: plants, herb
The charater pronunciate as same as “朱(zhu)”, which means red color.



Design Concept

I want to provide a new experience to non-native speakers who are unfamiliar but curious about Chinese culture and Characters, with the combination of Chinese Characters and Chinese mythological stories to convey some Chinese philosophical ideas.



Chinese Mythology Story



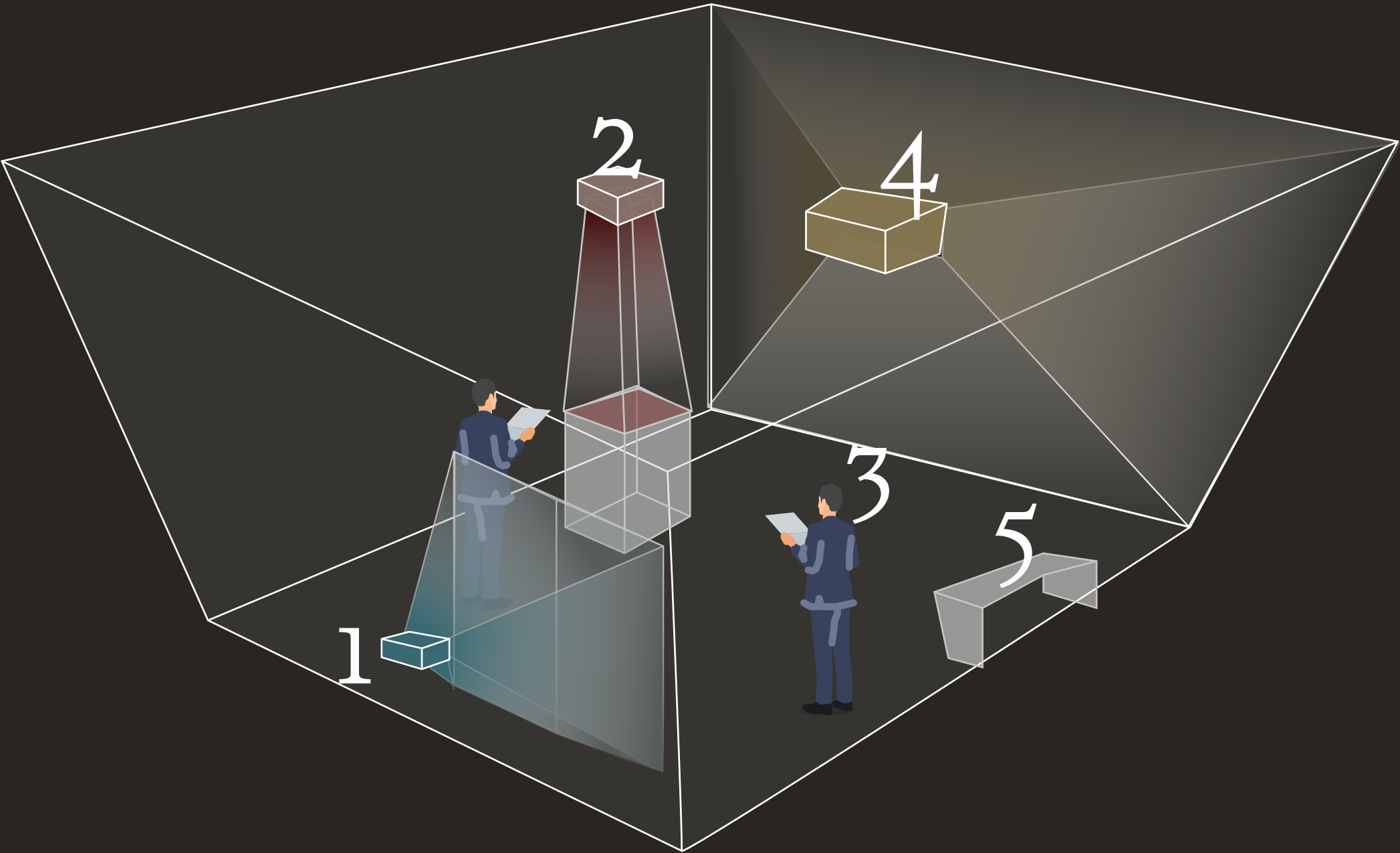
Chinese Characters has tight relationship with Philosophy and Art. Here is two of the story about killing the sun in the ancient time:

Hou Yi:
In mythological story, there are 10 suns on the sky and scorching the earth. Hou Yi was tasked by the mythical King to rein in the suns. After several failed negotiations with the suns, Hou Yi used his bow and arrows to shoot the suns down.

Kua FU:
a giant in mythology who wished to capture the Sun to stop the growing temperature, but finally die because of dehydration during his trip. His body turn into forest after his death.

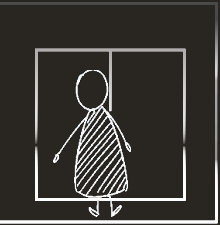
Ideation

Based on my own experience, I thought people can have more impression on how the character is go with a lively story, especially a event that happened on them. Hence, I merge the characters with the Chinese mythology story.



1

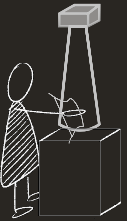
開
OPEN



Open the door:
Hear sounds and music,
see the enviornment

2

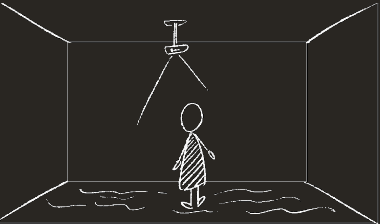
受
ACCEPT



Put hand on the stand:
Obtain an arrow on hand

3

涉
WADE

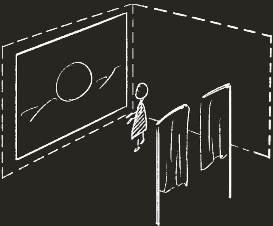
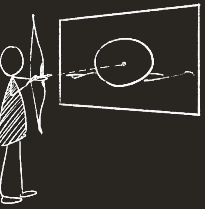




Step on the floor:
river situation change.

4

射
SHOOT



Pointing arrow toward sun:
Sun will broken.

5

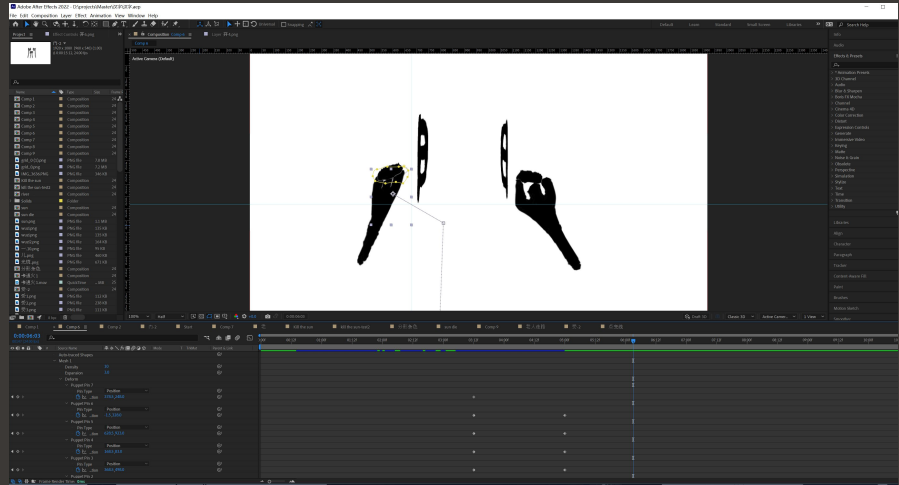
采
PICK



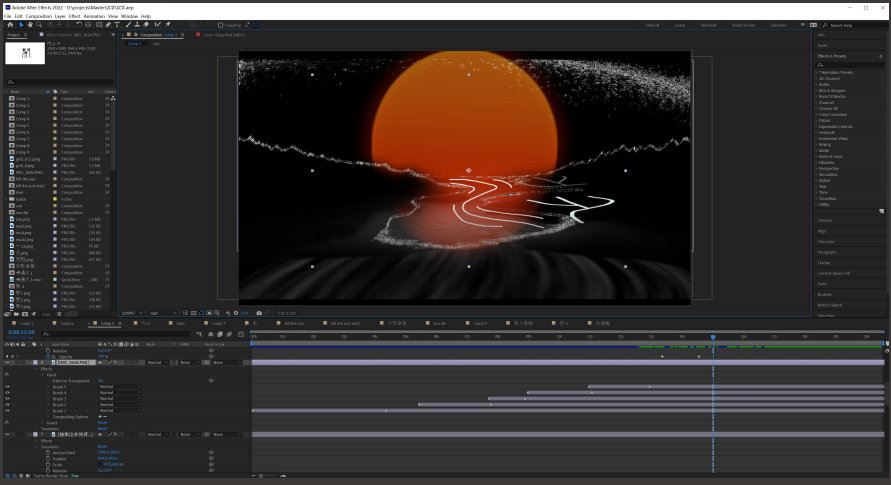
Touch the plant:
Pick up the fragment of the
broken sun.

Designing Process

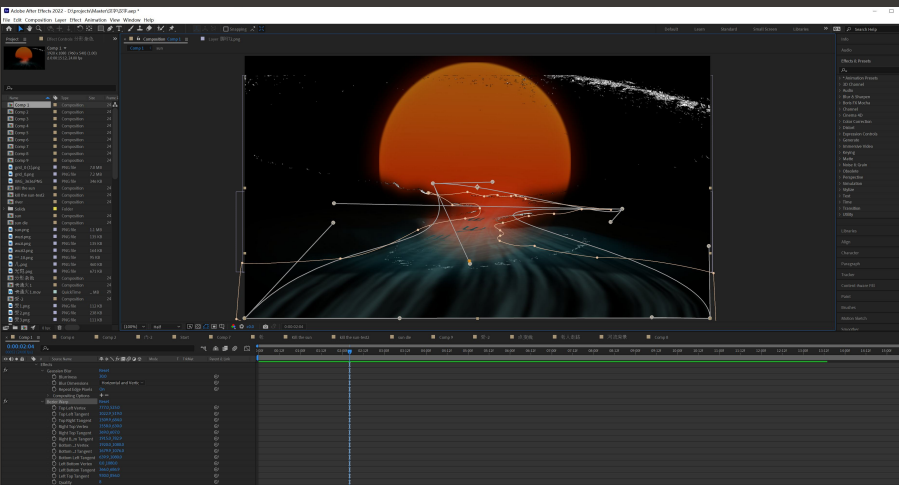
After making the background image in photoshop, I use after effects to animated the video with Chinese characters. Besides, I also created some animations for the background stories. Here are some AE production showcases:



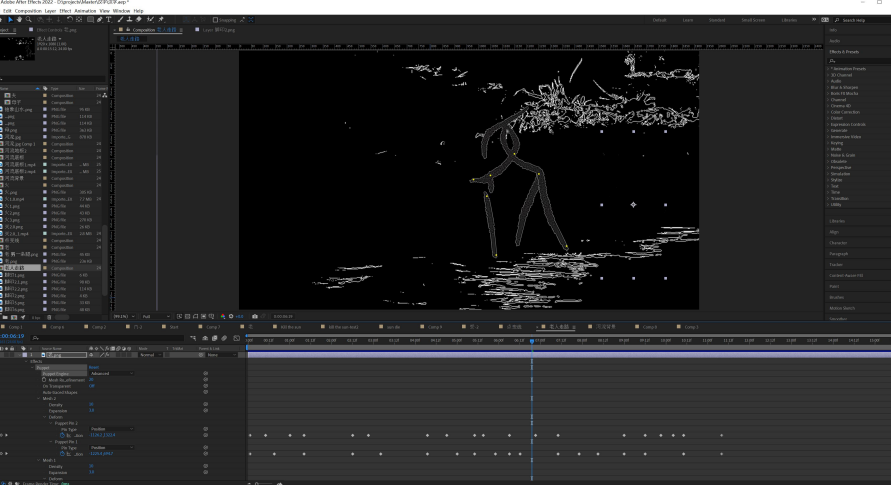
Puppet tools + 3D model for opening door effects



Brush tools for hand writing the Character “Water”



Bezier tools and movement for creating river flow



Puppet tools for creating the elder walking.

Coding

To further achieve my ideal result, I used some electronic modules and connected them with coding in Arduino and Processing.

```
PressureArdu
int fsrPin = A0;
int fsrReading;
void setup(void) {
  Serial.begin(9600);

  pinMode(fsrPin, INPUT);
}
void loop(void) {
  fsrReading = analogRead(fsrPin);

  Serial.println(fsrReading);

  if (fsrReading > 500) {
    Serial.print("A");
    delay(300);
  }

  delay(1000);
}
```



Pressure sensor resistance + Voltage conversion module

```
DistanceArdu
const int TrigPin = 8;
const int EchoPin = 7;
float distance;

void setup() {
  // put your setup code here, to run once:
  // Initialize serial communication and connect pins of SMD4
  Serial.begin(9600);
  pinMode(TrigPin, OUTPUT);
  // To detect the input pulse width on the pin, you need to set it to the input state first
  pinMode(EchoPin, INPUT);
  Serial.println("Ultrasonic sensor:");
}

void loop() {
  // put your main code here, to run repeatedly:
  // Generate a high 10us pulse to trigger TrigPin
  digitalWrite(TrigPin, LOW);
  delayMicroseconds(2);
  digitalWrite(TrigPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(TrigPin, LOW);
  // Detects the pulse width and calculates the distance
  distance = pulseIn(EchoPin, HIGH) / 58.00;
  if (distance < 50) {
    Serial.print("A");
    delay(300);
  }
  delay(100);
}
```



Ultrasonic Module/ Distance Sensor

```
LightArdu
int LightPin = A1;

void setup()
{
  Serial.begin(9600);

  pinMode(LightPin, INPUT);
}
void loop()
{
  int val = analogRead(LightPin);

  if (val > 500) {
    Serial.print("A");
    delay(300);
  }

  delay(100);
}
```



Photosensitive Sensor Module

```
import processing.serial.*;
import processing.video.*;

Serial port;
Movie MyVideo;

boolean IsDts = false;
void setup() {
  size(1920, 1080);
  port = new Serial(this, "COM5", 9600); //Arduino
  port.bufferUntil('\n');
  MyVideo = new Movie(this, "01.mp4");
}

void draw() {
  background(0);

  if (IsDts) {
    image(MyVideo, 0, 0, width, height);
    MyVideo.read();
  }

  PortRead();
}

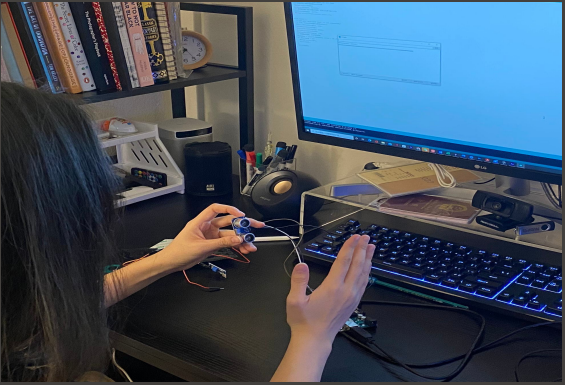
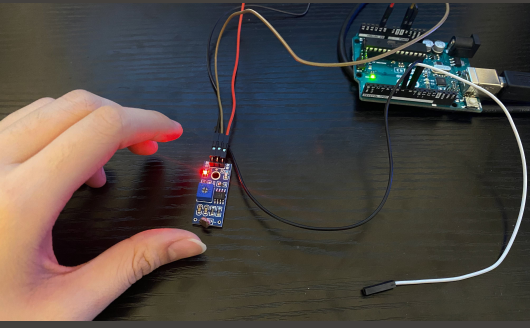
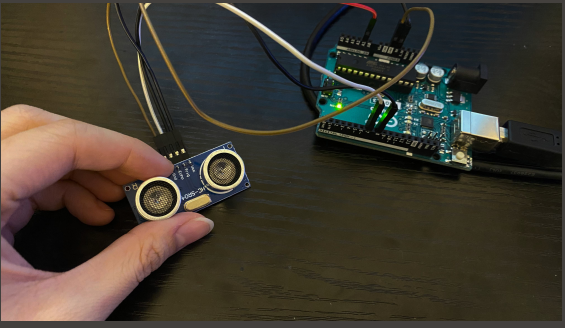
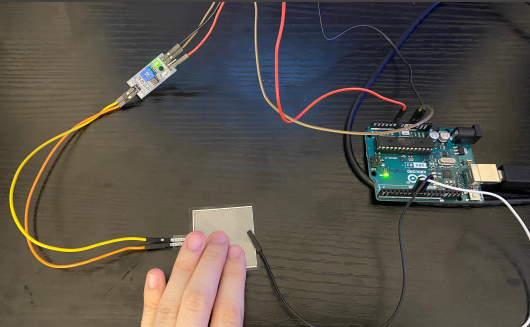
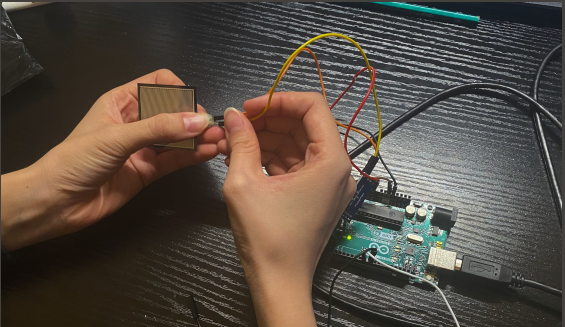
void PortRead() {
  if (port.available() > 0) {
    String str = port.readString();
    if (str.equals("A") && !IsDts) {
      MyVideo.play();
      IsDts = true;
    }
  }
}
```



Connect Arduino with processing and use for video projection.

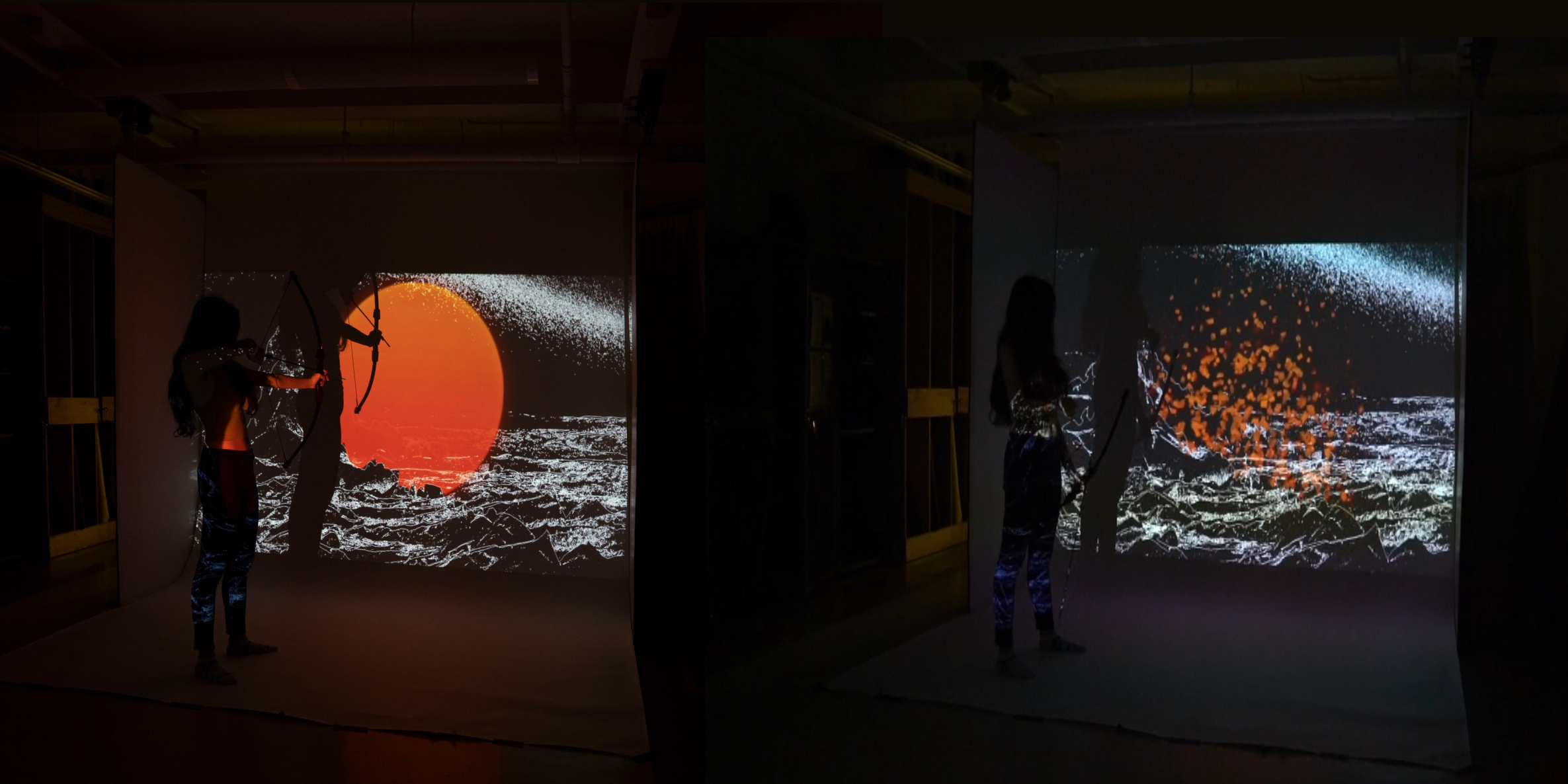
Testing

Before the final installation, I did several testing at home and also at the studio before the shoot.



Final Display

Here are some photos about the final result. The story is about a tribal hero (heroine) goes to kill the scorching sun to save his (her) kinsmen. In this installation, audiences take on the role of heroes and learn the usage of some Chinese characters while experiencing Chinese mythology.



4 The audience needs to use the flashlight on their arrow to aim at the photoresistor in the center of the sun's image on the screen.

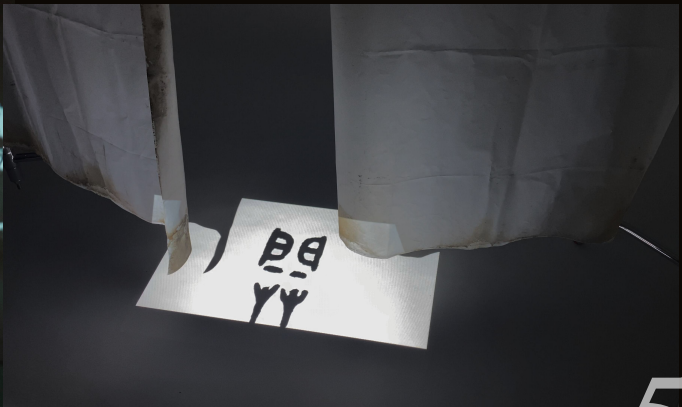
1 After opening the door, the viewer starts hearing babies cry and the burning enviornment.



3 Heroes climb mountains and wade through water to chase the sun.



2 Audience need to accept a virtual bow from the elder.

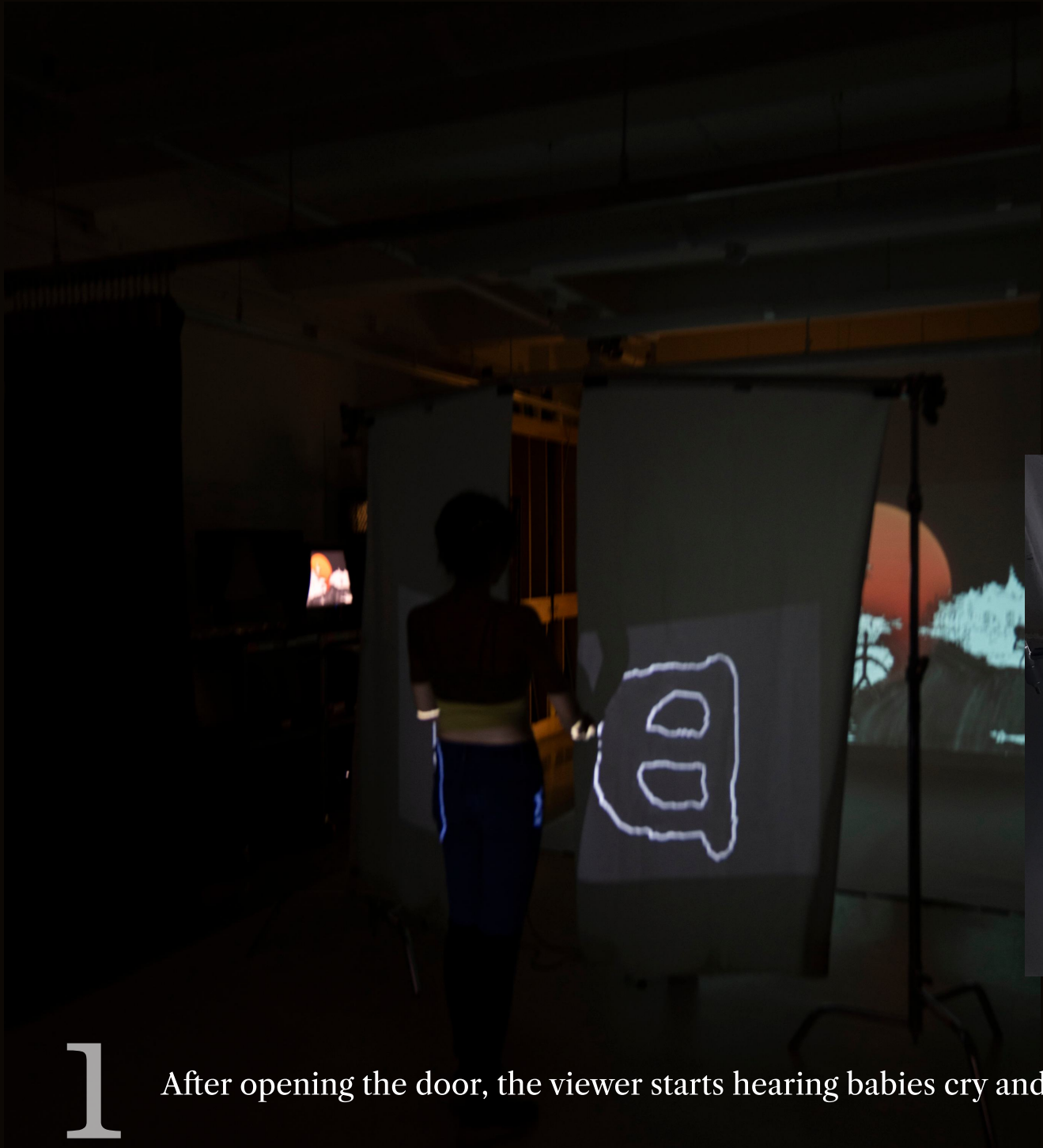


5 Pick up the fragment of the sun and vitality returns to the earth

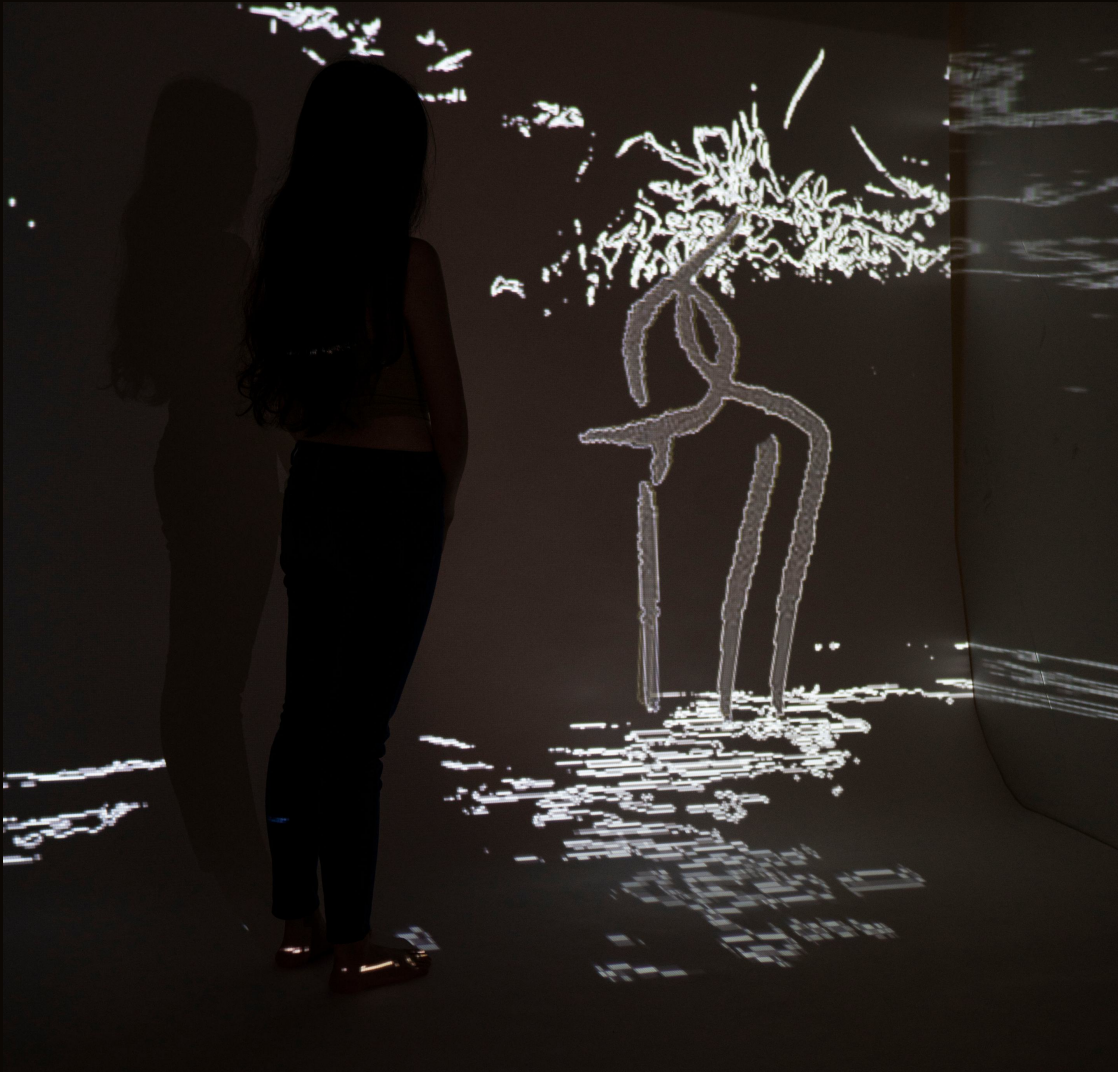
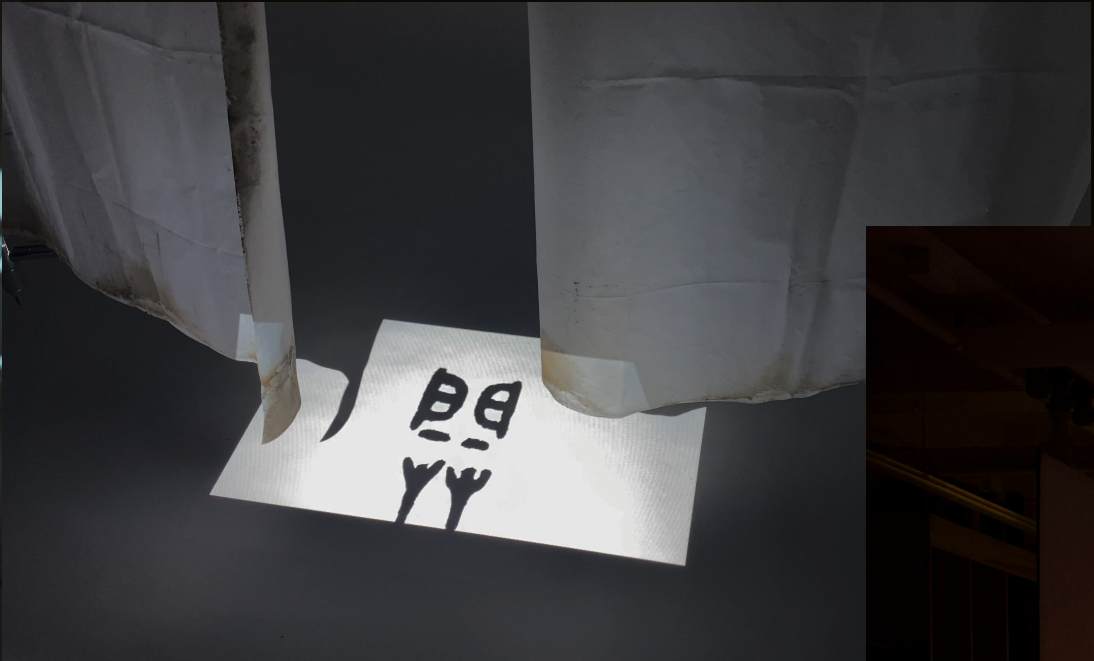


Final Display

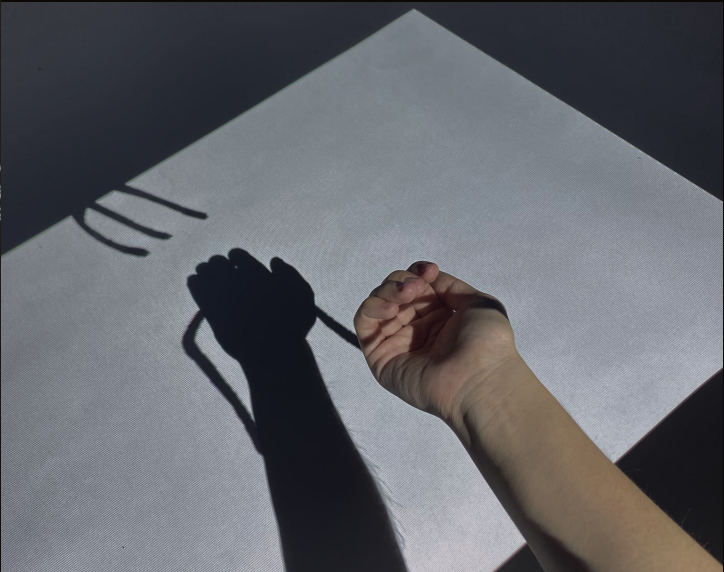
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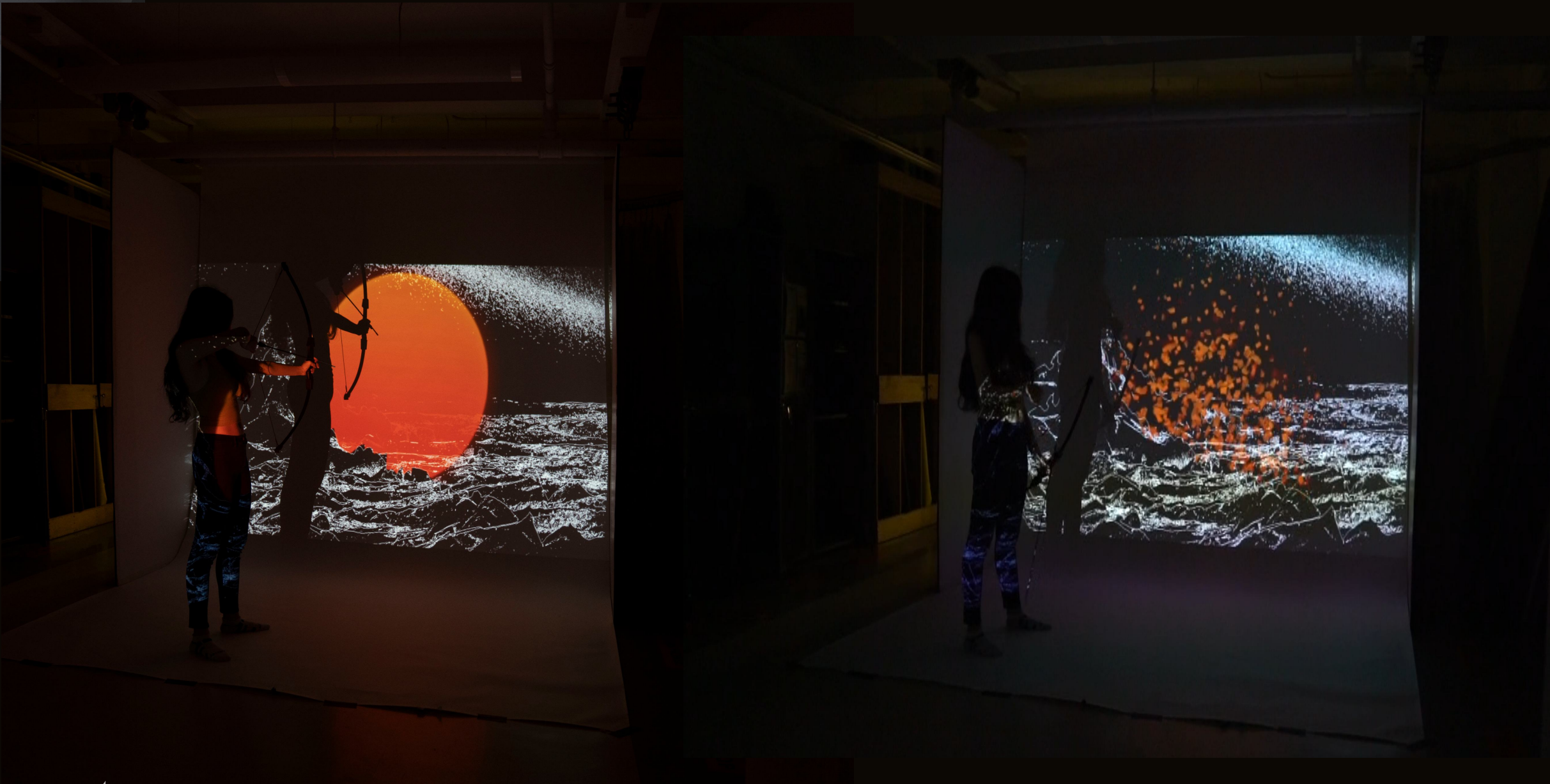
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