

Submission 1_Presence

Background

Our group's project will aim to create an immersive experience focusing on thalassophobia and the journey towards calmness by using interactive installation. Participants will need to get through the various layers of thalassophobia to escape from the fear. The layers include:

- A dangerous deep-sea environment (the first layer).
- The deep-sea environment (the second layer) triggers the chaotic psychical and mental responses.
- The fear of the unknown (the third layer).

After successfully escaping from the three layers, participants will enter a state of calmness.

Research - <https://blogs.ed.ac.uk/dmsp-presence24/2024/02/09/research/>

Similar Artists' Works

- The Hidden Worlds of Noise and Voice - <https://vimeo.com/17229647>
- Wishing Wall - <https://youtu.be/MX0Z6aHZYDw>
- Audiovisual Environment Suite - <https://www.flong.com/archive/projects/aves/index.html>

Design - <https://blogs.ed.ac.uk/dmsp-presence24/2024/02/11/design/>

This section will present the ideas of our project design from four aspects, including sound design, composition, visual component and interaction installation.

Sound Effects

Regarding sound design, we created sound effects and ambiances by drawing from mythology and pictures of deep-sea environments to deliver a sense of thalassophobia. Some sounds are inspired by mythical sea monsters.

- Sound 1: Kraken - https://youtu.be/yIPAzM_PrmQ
- Sound 2: Sirens - https://youtu.be/fFS_q_P8_rM
- Sound 3: Leviathan - <https://youtu.be/6hdcRIsmeiU>
- Sound 4: Deep-sea Ambience - <https://youtu.be/0CdP53ZbtMs>
- Sound 5: Peaceful White Noise - <https://youtu.be/WOrk4bnBU60>

Composition

Two approaches are used in the harmonic construction, both influenced by deep sea themes. Mirror harmony, where intervals are reflected vertically in a chord, and a form of spectral harmony, where the harmonic content is based on the spectral analysis of different whale sounds (two from a blue whale, two from a chorus of whales).

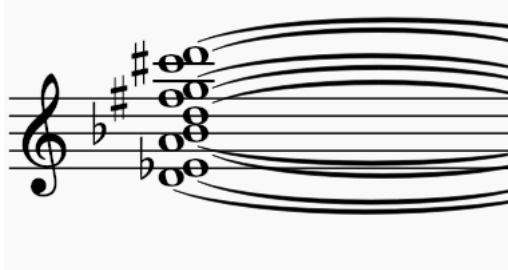
<https://www.youtube.com/watch?v=josZw74bjaA>

- Sound 6: **Mirror Chord 1**
- Sound 7: **Mirror Chord 2**
- Sound 8: **Mirror Chord 3**
- Sound 9: **Mirror Chord 4**
- Sound 10: **Spectral Harmony (Blue Whale Chord 1)**
- Sound 11: **Spectral Harmony (Blue Whale Chord 2)**
- Sound 12: **Spectral Harmony (Whale Chorus Chord 1)**
- Sound 13: **Spectral Harmony (Whale Chorus Chord 2)**

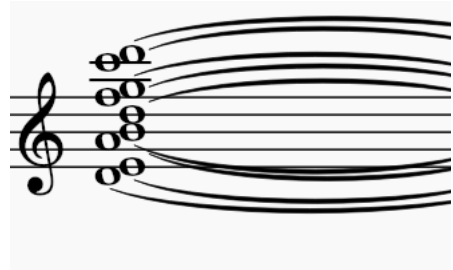
Composition.

Harmonies in score.

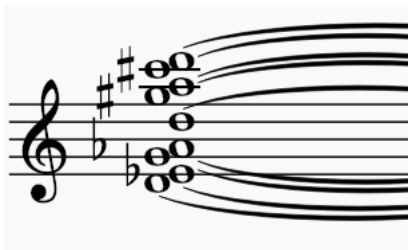
Mirror Chord 1.



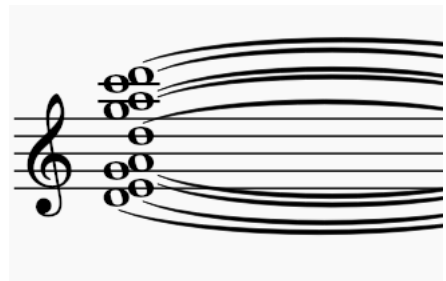
Mirror Chord 2.



Mirror Chord 3.



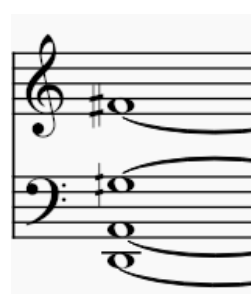
Mirror Chord 4.



Spectral Chord (Blue Whale 1).



Spectral Chord (Blue Whale 2).



Spectral Chord (Whale Chorus 1).

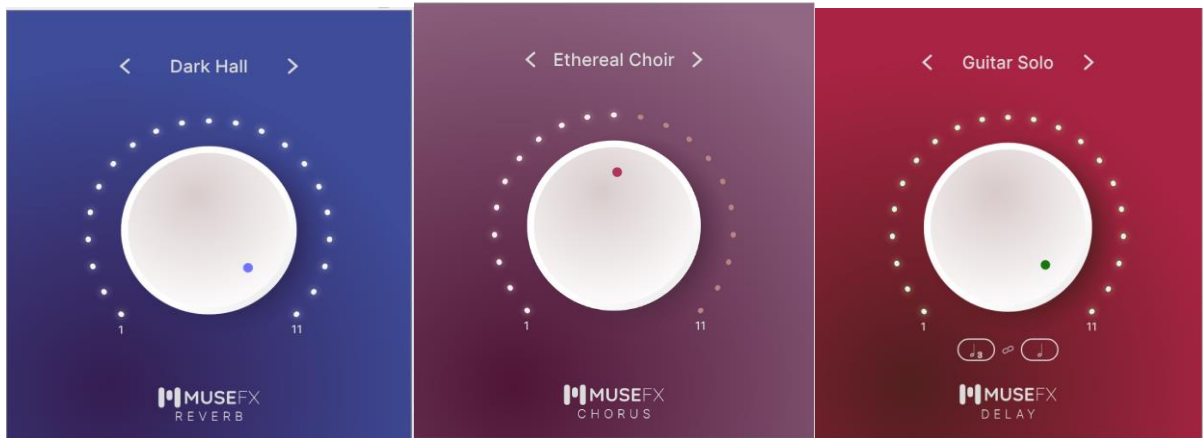


Spectral Chord (Whale Chorus 2.)

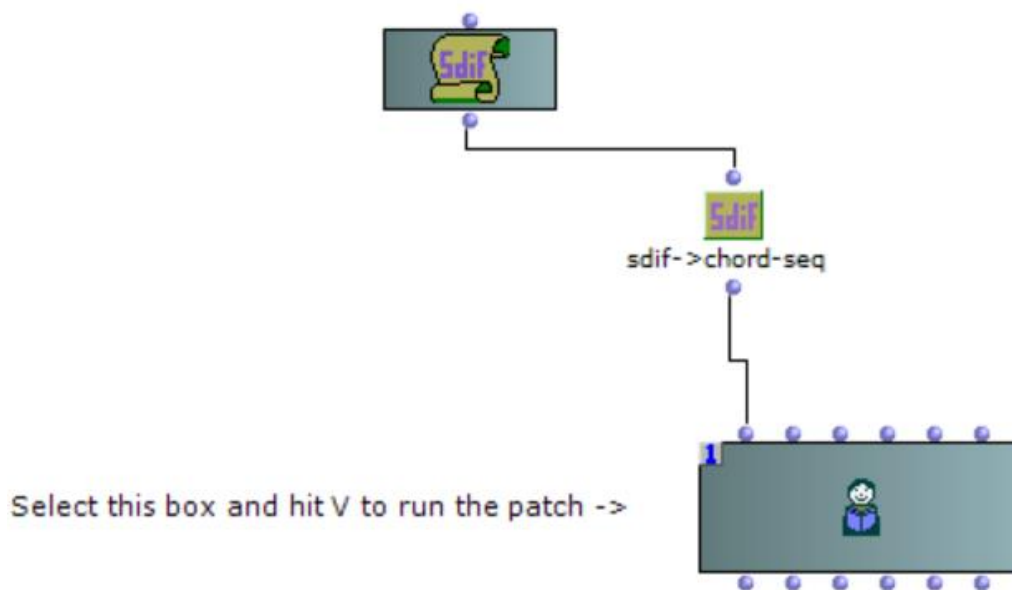


Technology used.

Effects used on the chords:



Openmusic converting SPEAR files into staff notation.



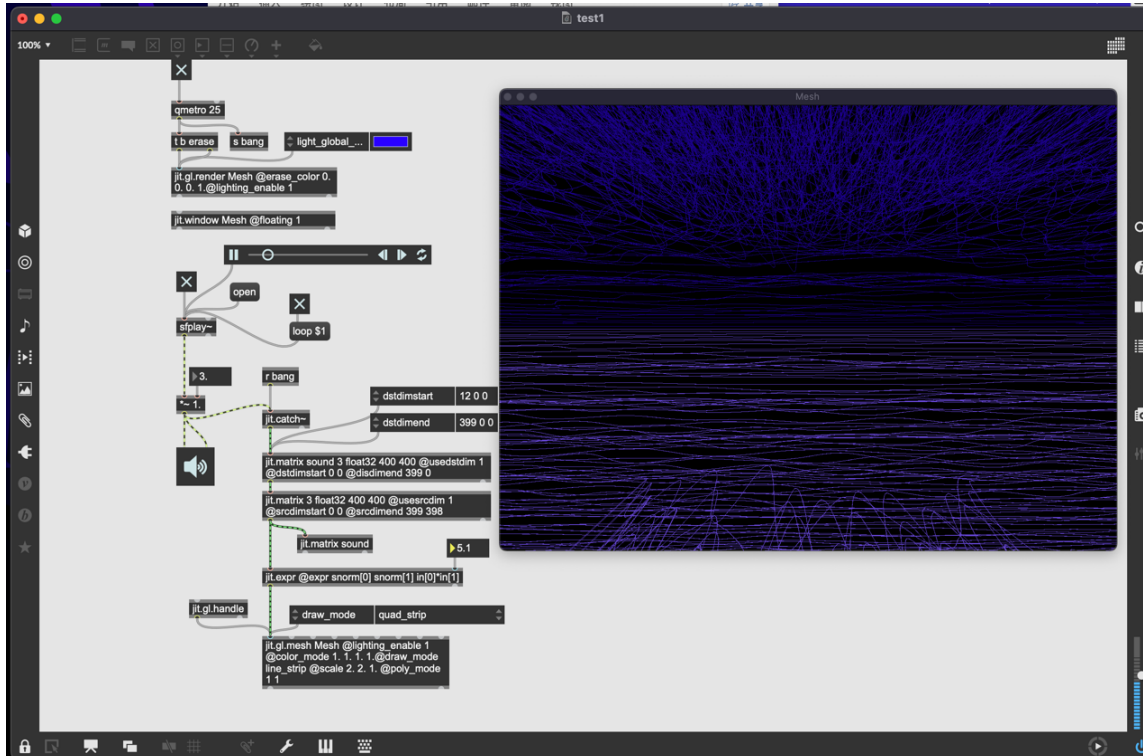
Mirror harmony uses a reversed MIDI vibraphone sound.

The Spectral harmony/'whalesong chords' uses a reversed playback of the 'Soft Piano' in Muse Hub. This is because of Muscores surprisingly high-quality playback, as well as the ability to play back quarter-tones, which MIDI can't do as easily.

Visual Component

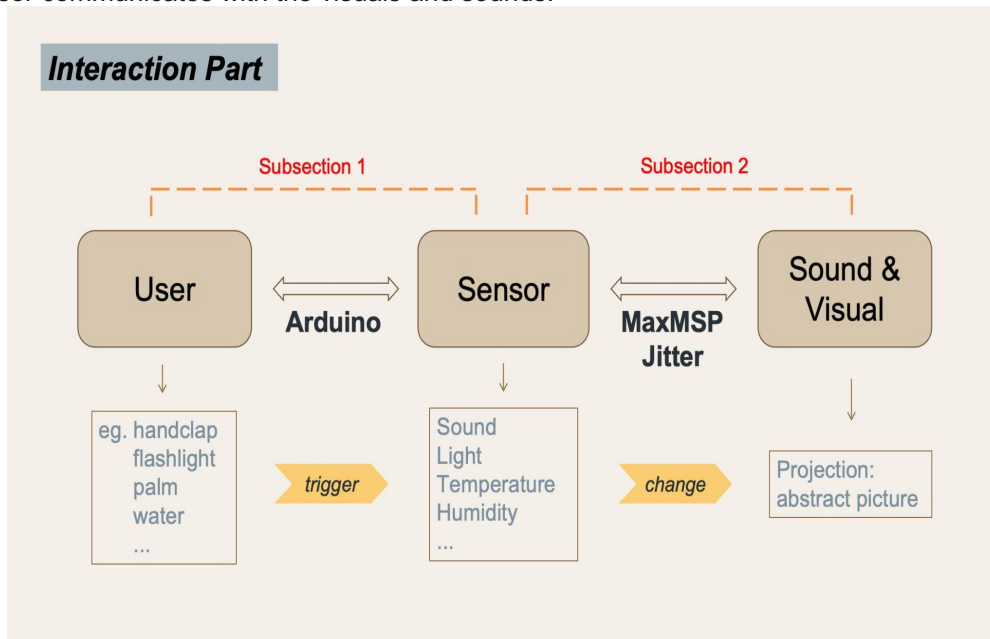
According to our theme of thalassophobia, thinking about the darkness and depth of the deep sea environment will make people feel fearful, so the visual part mainly uses abstract lines, waveforms or patterns to depict this emotion and allow people to use their imagination.

➤ Screenshot from MaxMSP

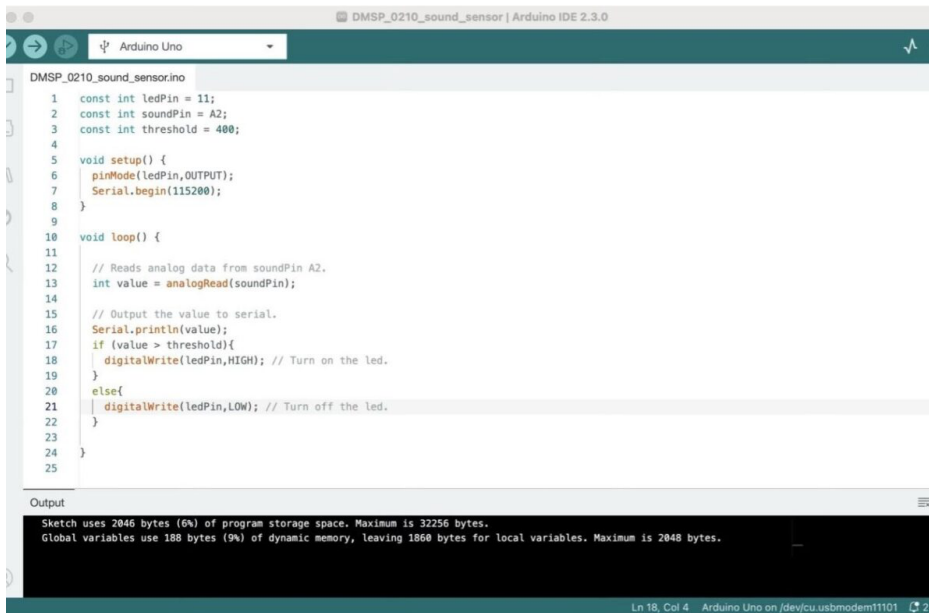


Interactive Installation

The interactive installation consists of four components: the user, the sensor, the sound, and the visual projection. This setup can be divided into two subsections: first, the user triggers the sensor, and then the sensor communicates with the visuals and sounds.



➤ Sound Sensor from Arduino



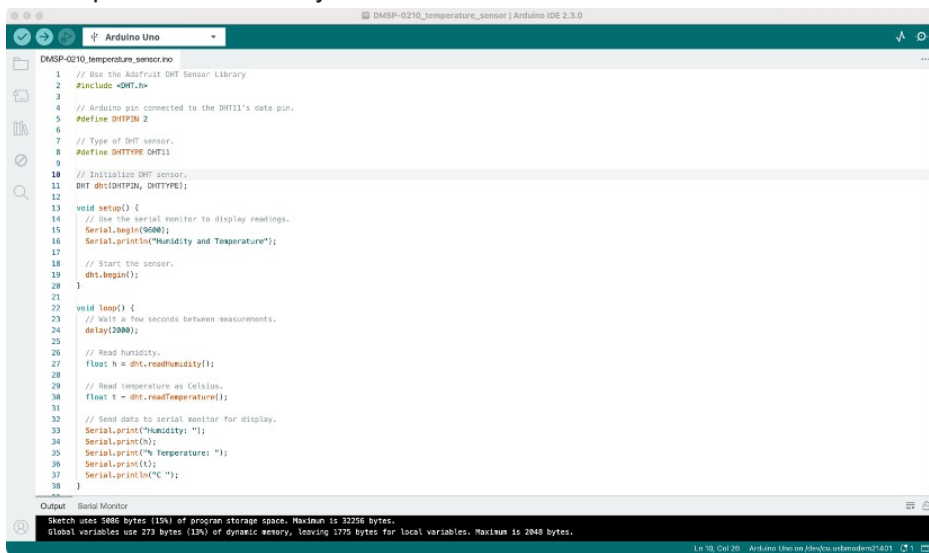
```
DMSp_0210_sound_sensorino
1  const int ledPin = 11;
2  const int soundPin = A2;
3  const int threshold = 400;
4
5  void setup() {
6    pinMode(ledPin,OUTPUT);
7    Serial.begin(115200);
8  }
9
10 void loop() {
11
12   // Reads analog data from soundPin A2.
13   int value = analogRead(soundPin);
14
15   // Output the value to serial.
16   Serial.println(value);
17   if (value > threshold){
18     digitalWrite(ledPin,HIGH); // Turn on the led.
19   }
20   else{
21     digitalWrite(ledPin,LOW); // Turn off the led.
22   }
23
24 }
25
```

Output

Sketch uses 2046 bytes (6%) of program storage space. Maximum is 32256 bytes.
Global variables use 188 bytes (9%) of dynamic memory, leaving 1860 bytes for local variables. Maximum is 2048 bytes.

Ln 18, Col 4 Arduino Uno on /dev/cu.usbmodem11101

➤ Temperature & Humidity Sensor from Arduino



```
DMSp_0210_temperature_sensorino
1  // Use the Adafruit DHT Sensor Library
2  #include <DHT.h>
3
4  // Arduino pin connected to the DHT11's data pin.
5  #define DHTPIN 2
6
7  // Type of DHT sensor.
8  #define DHTTYPE DHT11
9
10 // Initialize DHT sensor.
11 DHT dht(DHTPIN, DHTTYPE);
12
13 void setup() {
14   // Use the serial monitor to display readings.
15   Serial.begin(9600);
16   Serial.println("Humidity and Temperature");
17
18   // Start the sensor.
19   dht.begin();
20 }
21
22 void loop() {
23   // Wait a few seconds between measurements.
24   delay(2000);
25
26   // Read humidity.
27   float h = dht.readHumidity();
28
29   // Read temperature as Celsius.
30   float t = dht.readTemperature();
31
32   // Send data to serial monitor for display.
33   Serial.print("Humidity: ");
34   Serial.print(h);
35   Serial.print(" Temperature: ");
36   Serial.print(t);
37   Serial.println("C");
38 }
```

Output Serial Monitor

Sketch uses 5886 bytes (18%) of program storage space. Maximum is 32256 bytes.
Global variables use 273 bytes (13%) of dynamic memory, leaving 1775 bytes for local variables. Maximum is 2048 bytes.

Ln 18, Col 26 Arduino Uno on /dev/cu.usbmodem11101

Prototype

In this video, we show how we use our existing technology to realize our project, including the connection of sensors and the construction of visual effects from MaxMSP jitter.

<https://www.youtube.com/watch?v=ahYoyamt32w&t=82s>

Venue and Setting -

The presentation format for our project involves creating an immersive installation that encourages user interaction. Thus, certain considerations have been taken in selecting the venue and equipment. Our main focus lies on immersion, projections, speakers and sensors.

<https://blogs.ed.ac.uk/dmsp-presence24/2024/02/11/venue-and-setting/>