

Part 4 project technical test + iteration

1. Handpose OSC

Perform selected gestures for HandPose OSC and it will track landmarks.

OSC output

Port: 8008, which can be changed in the GUI.

Select the content sent via OSC from the GUI:

Confidence:

Hand in view confidence /handInViewConfidence [0..1]

Bounding box

top left: /topLeft [x, y, z]

bottom right: /bottomRight [x, y, z]

Landmarks:

landmarks /landmarks (21 * [x, y, z])

Annotations:

thumb /annotations/thumb (4 * [x, y, z])

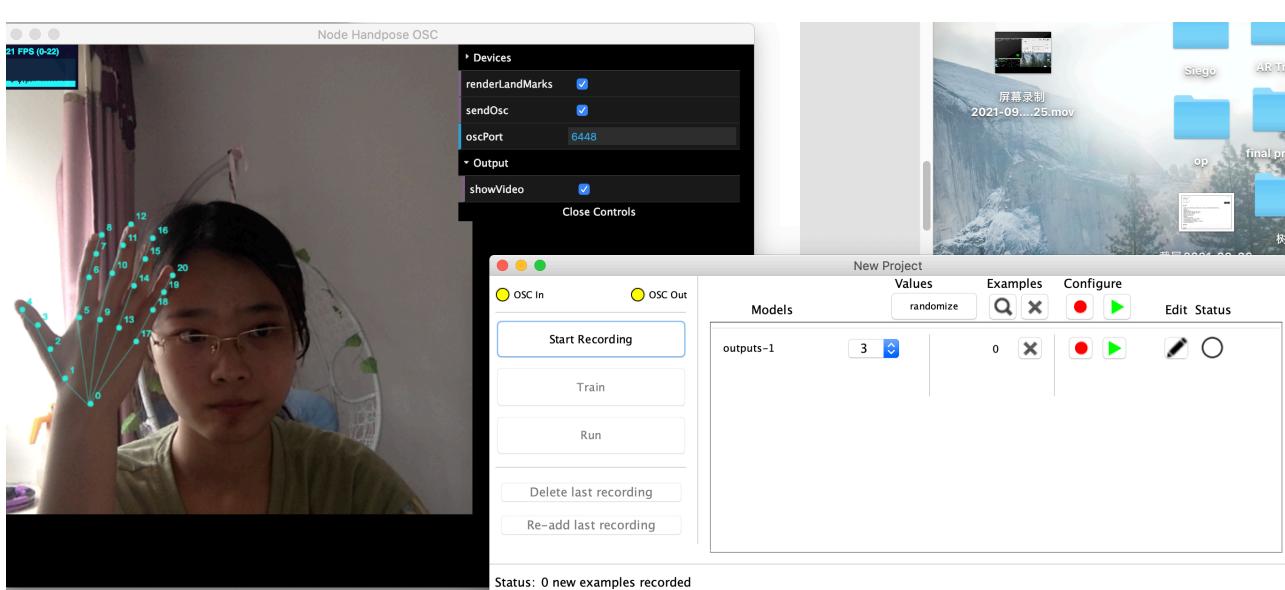
index finger /annotations/indexFinger (4 * [x, y, z])

middle finger /annotations/middleFinger (4 * [x, y, z])

ring finger /annotations/ringFinger (4 * [x, y, z])

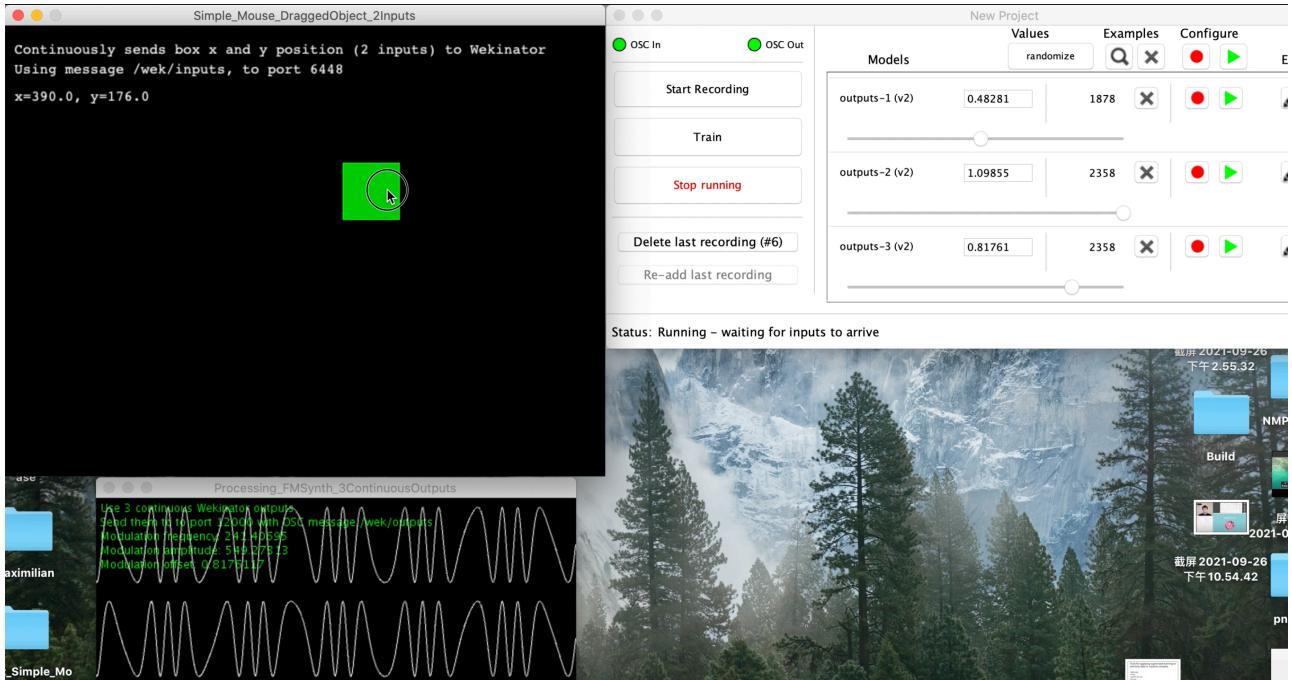
pinky /annotations/pinky (4 * [x, y, z])

palm base /annotations/palmBase [x, y, z]



2. Wekinator OSC

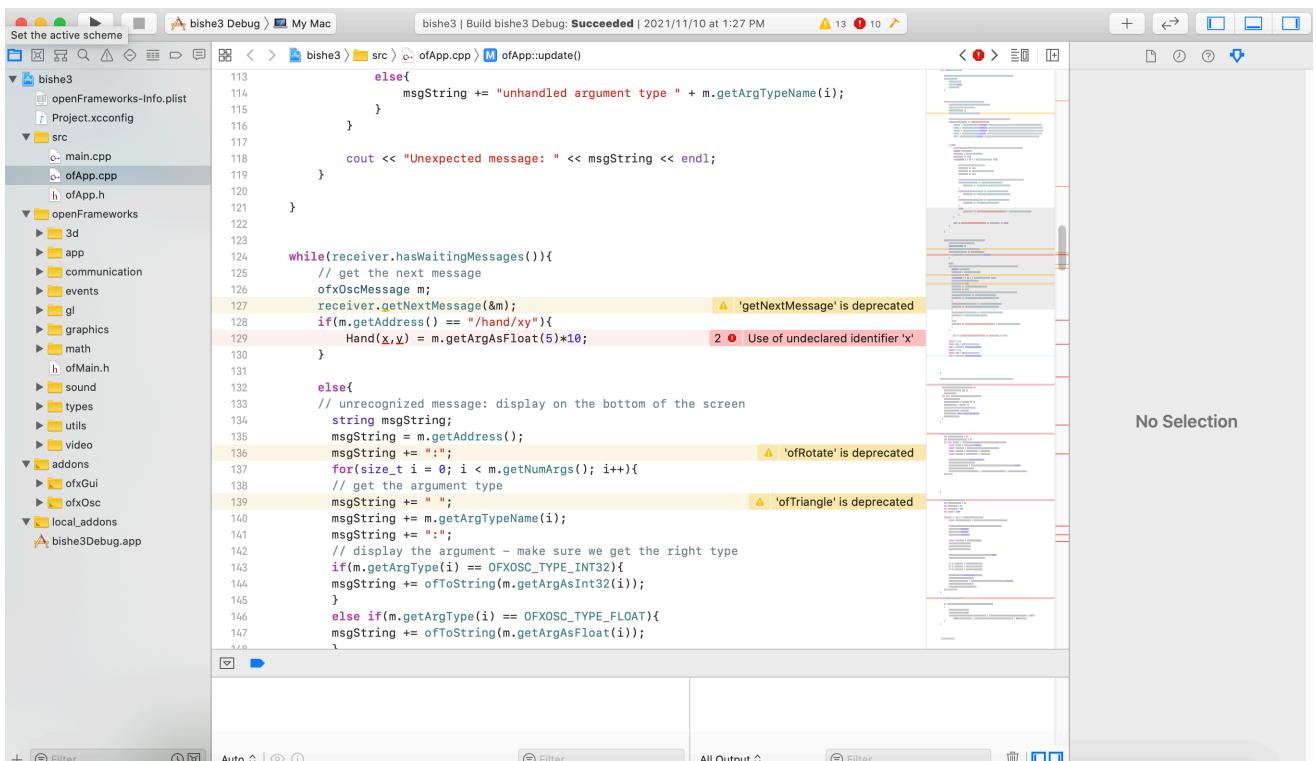
test the example from wekinator offical website



Test video link: <https://youtu.be/rr9QoIQW-jY>

3. Openframeworks OSC

Output OSC in Openframework



4. Openframework adjusts picture background color.

```
1 #include "ofApp.h"
2
3 ofApp image;
4
5 //-----
6 void ofApp::setup(){
7     color.r=120;
8     color.g=120;
9     color.b=225;
10    //ofSetBackgroundColor(backgroundColor);
11    ofSetColor(color);
12
13    ofCircle( 50, 50, 50 );
14
15
16
17    image.loadImage("body.jpg");
18
19    //Start listening for OSC messages
20    receiver.setup(PORT);
21
22 }
23
24
25 //-----
26 void ofApp::update(){
27
28     color.setBrightness(color.r,color.g,color.b,{0.,0.,0.}); ⚠️ Too many arguments to function...
29
30     //Receive any incoming OSC messages
31     while(receiver.hasWaitingMessages()){
32         // get the next message
33         ofxOscMessage m;
34         receiver.getNextMessage(&m);
35
36 }
```

5. Openframework - OfGui and Output

For me, the code to change the image attributes is difficult. In the process, I found that some changeable visual elements are very interesting output, so I tried to add changeable visual elements to the photos as poster elements. It consists of 3 output elements, namely countX, stepX and twistX. countX controls the number of drawing primitives, stepX controls the distance between primitives along the x-axis, and twistX controls the rotation of primitives based on its index. I expect to add more output that can change the graph.

```

1 #include "ofApp.h"
2
3 //-----
4 void ofApp::setup(){
5
6     //设置全局属性，项目的窗口标题，屏幕大小，渲染帧率，背景颜色
7     ofSetWindowTitle( "photo page" );
8     ofSetWindowShape( 1280, 720 );
9     ofSetFrameRate( 60 );
10    ofBackground( ofColor::white );
11
12    gui.setup( "Parameters", "settings.xml" );
13    gui.add( countX.setup( "countX", 50, 0, 200 ) );
14    gui.add( stepX.setup( "stepX", 20, 0, 200 ) );
15    gui.add( twistX.setup( "twistX", 5, -45, 45 ) );
16
17    //gui.add( Scale.setup( "Scale", 1, 0.0, 1 ) );
18    //gui.add( Rotate.setup( "Rotate", 0, -180, 180 ) );
19    //gui.add( Background.setup("Background",255,0, 255));
20
21
22    color.r=90;
23    color.g=80;
24    color.b=160;
25    //ofSetBackgroundColor(backgroundColor);
26    image.loadImage("body.jpg"); ⚠ 'loadImage' is deprecated
27    ofSetColor(color);
28
29    gui.loadFromFile( "settings.xml" );
30
31    //Start listening for OSC messages
32    receiver.setup(PORT);

```

6. In Openframework, try to draw the track of the mouse movement in the program.

There are 3 different styles of brushes.

brush 1:

```

void ofApp::brush1(){
    int radiusStepSize = 2;
    int maxOffsetDistance = 1;
    for (int radius = size; radius>0;radius-= radiusStepSize){
        float angle = ofRandom(360.0);
        float distance = ofRandom(maxOffsetDistance);
        float xOffset = cos(angle) * distance;
        float yOffset = sin(angle) * distance;

        ofColor firstcolor(0,225,60,30);
        ofColor colorss(color);
        ofColor inBetween =
            firstcolor.getLerped(colorss,ofRandom(1,0));
        ofSetColor(inBetween);
        ofDrawCircle(ofGetMouseX() + xOffset,ofGetMouseY() +
                    yOffset, radius);
    } //spots
}

```

brush 2:

```

void ofApp::brush2(){
    int numTriangles = 4;
    int minOffset = 5;
    int maxOffset = 10;
    int alpha = 150;

    for(int t = 0; t < numTriangles; ++t){
        float offsetDistance = ofRandom(minOffset,maxOffset);

        ofVec2f mousePos(ofGetMouseX(),ofGetMouseY());
        ofVec2f p1(100,8);
        ofVec2f p2(200,0);
        ofVec2f p3(100,-8);

        float rotation = ofRandom(360);
        p1.rotate(rotation);
        p2.rotate(rotation);
        p3.rotate(rotation);

        ofVec2f triangleOffset(offsetDistance,0.0);
        triangleOffset.rotate(rotation);

        p1 += mousePos + triangleOffset;
        p2 += mousePos + triangleOffset;
        p3 += mousePos + triangleOffset;

        ofColor init(0,252,255,alpha);
        ofColor colors(color);
        ofColor inbetween = init.getLerped(colors,ofRandom(1.0));
        ofSetColor(inbetween);
        ofDrawTriangle(p1,p2,p3);
    } //triangles
}

```

brush 3:

```

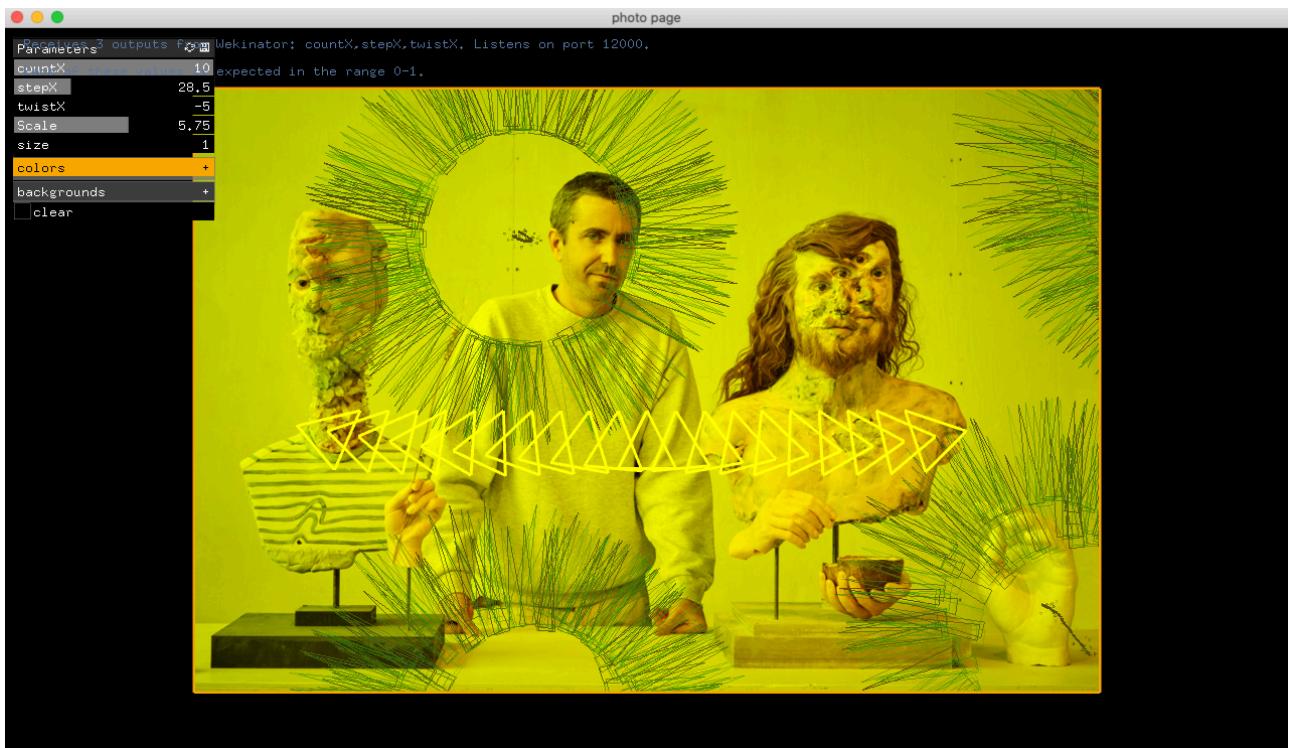
void ofApp::brush3(){

    if (ofGetMousePressed(OF_MOUSE_BUTTON_LEFT))
    {
        ofSetColor(color);
        ofSetLineWidth(1);
        ofDrawLine(mouseX, mouseY, mouseX +
            ofSignedNoise(ofGetElapsedTimef() + 1.8) * 100*scale,
            mouseY + ofSignedNoise(ofGetElapsedTimef()) * 10*scale);
    }
}

```

The problem:

The 3 brushes will appear at the same time when drawing. I am trying to change the code and set the parameters in the GUI to adjust the parameters of the 3 brushes respectively.



7. Wekinator : train and test

Wekinator is a piece of software which has OSC as input and output. The user can demonstrate

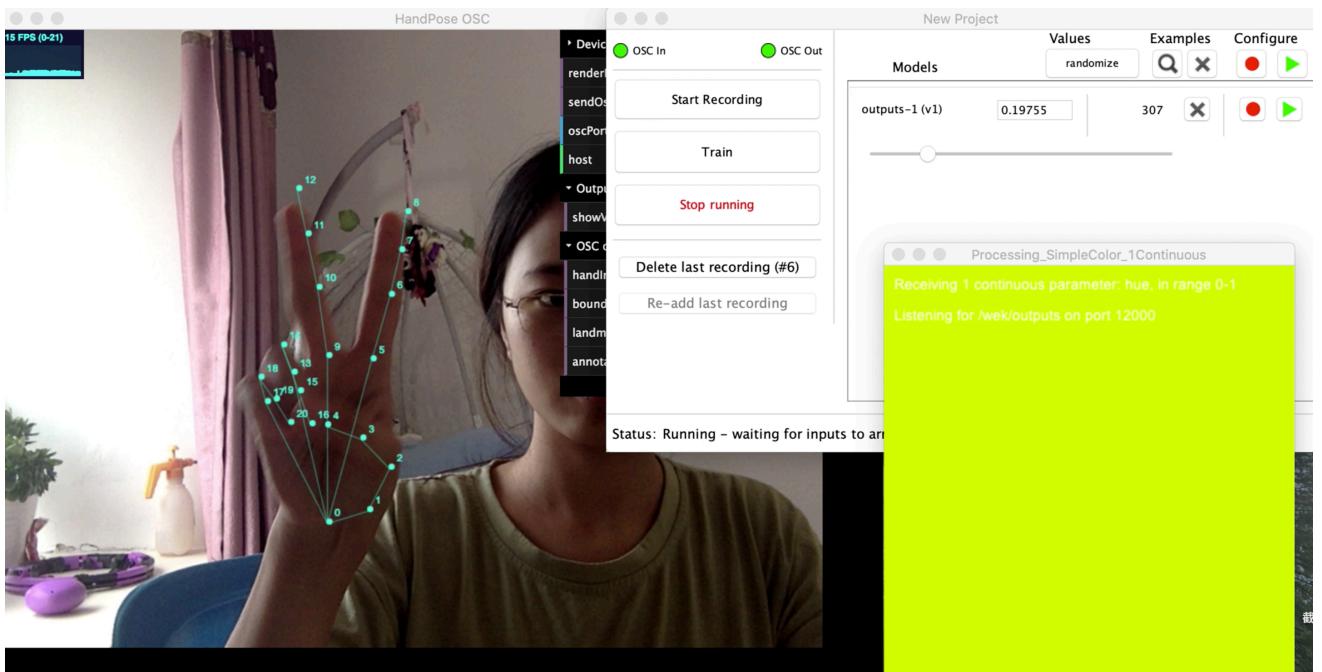
inputs and their desired outputs and then train a machine learning algorithm to predict the desired

output given an input. In our case, Wekinator will take landmarks from the different hand gestures

and output the predicted gesture.

Three output methods of Wekinator: 1. Classification 2. Numeric 3. Dynamic time warping event

outputs



Video Link: <https://youtu.be/ou3THfJtCnI>