

# Animoji

Animoji is a term coined by apple along with the new launched iphone X, as animated emoji, it's also an app work with iphone X's dual cameras and track users' face and emotion and make animated emoji!

## Background.

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### Machine Learning and Face Recongnition

- Dual camera and 3D face tracking
- Mahine learning vs Hard coding

### Iphone X and Animoji

Some demo?

## What do We do Today?

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Go deeper and see how thing works, how can computer have vision, and how much can computer can actually see? and how difficult or easy will that be? And as a side project, we also learn basic about processing and code our first very own animoji app from scratch!

### Demo

A simplified 2D animoji program: FaceOSC + Processing code.

- Component 01: **FaceOSC**. FaceOSC is working on the tracking part, it extracts face data with the realtime captured image.
- Component 02: **Processing**. Processing is doing the drawing job, and we'll learn how program this!
- Component 03: **OSC**. OSC( Open Sound Protocol) is the bridge inbetween, you can just image it as email and faceOSC is emailing

### Processing

#### What is Processing?

- A programming language: Yes, you are learning how to code in this language.
- Jave Framework: Just want you know, you are java programmer now!

- Software.
- Integrated development environment: Editor.
- Designed for enthusiast, maker, designer, artists or in short , for people who are not professionals and "supposedly not able to program".
- EASY to learn!

## **Basics of programming.**

Let's code! Open your IDE/ Editor/ Processing software.

### **Run code!**

- Hit the run button.
- Or use combo key short cut: cmd + R
- Check what do you have, like exactly nothing because we have done nothing so far! But you just got your first programming task done; Simple and EASY!
- By the way, this is actually something big, processing have handled all boring work for you: setup the environment.

### **Functions.**

- what is function? Take excel as an example.
- Window size: size();
- Background color: background();
- Shapes: ellipse(), rect();
- Style: fill();stroke();strokeWeight();

### **Punctuation and Syntax.**

- Semi colon;
- Parameters;
- Case sensitive;

### **Code is executed line by line!**

### **Animation.**

- Structure function: setup(); draw();
- random() function;
- running ball: variables;
- returning ball: if statement;

### **Key interaction.**

- mouse click;
- key press;
- ping pong ball;
- mouseX and mouseY;
- a drawing program;

### **Let's draw a face!**

- Face
- OSC: keep sending emails
- data driven face drawing
- Demo

ps. You will need oscP5 library and faceOSC app to make this work.

OSC library: sketch--> import library --> add library; "Contribution Manager" will pop up; -->search " oscP5";  
hit install

faceOSC app: <https://github.com/downloads/kylemcdonald/ofxFaceTracker/FaceOSC.zip>