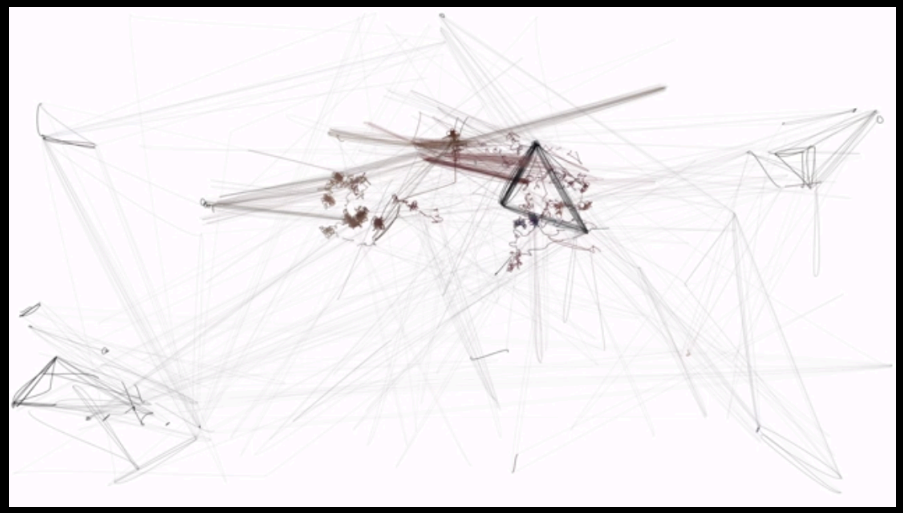
Yumeng's Unprecedentedly Extraordinary Untitled Computer Vision Project for Core Studio, Lab and Quad C Final

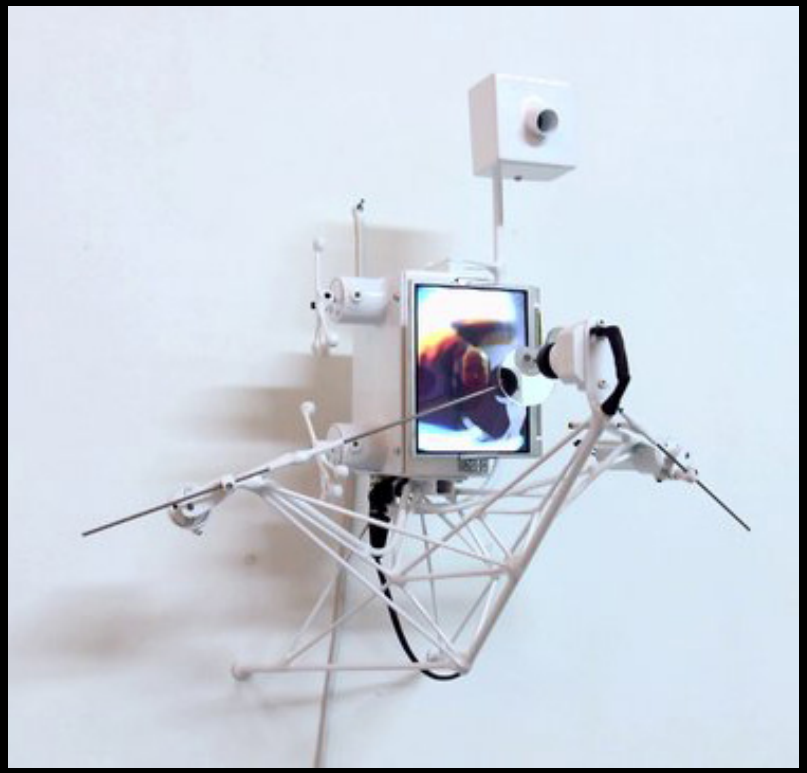
- Yumeng Wang

Reference - Computers Watching Movies



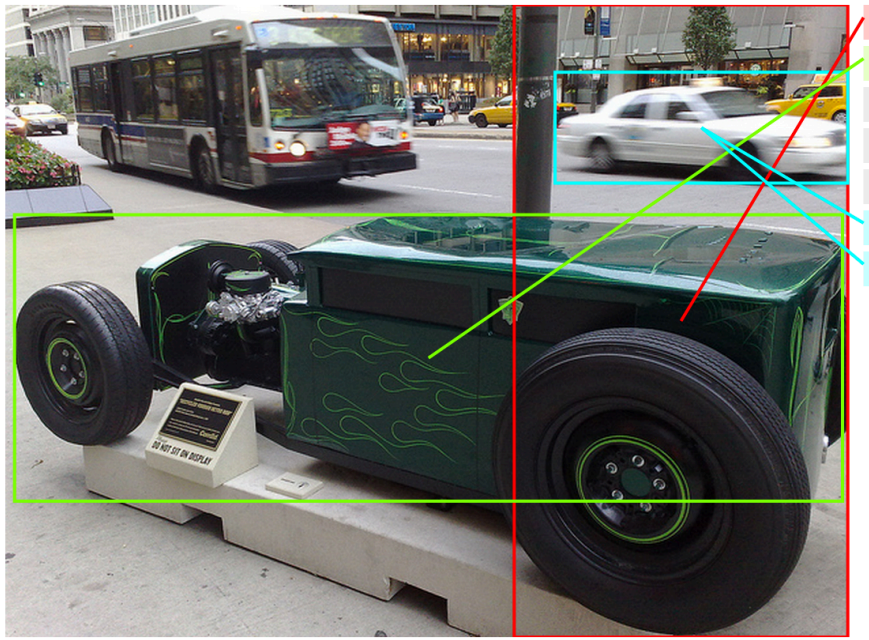
Benjamin Grosser

Reference - Vision Machine



Björn Schülke

Recognizing Objects and Their Surroundings



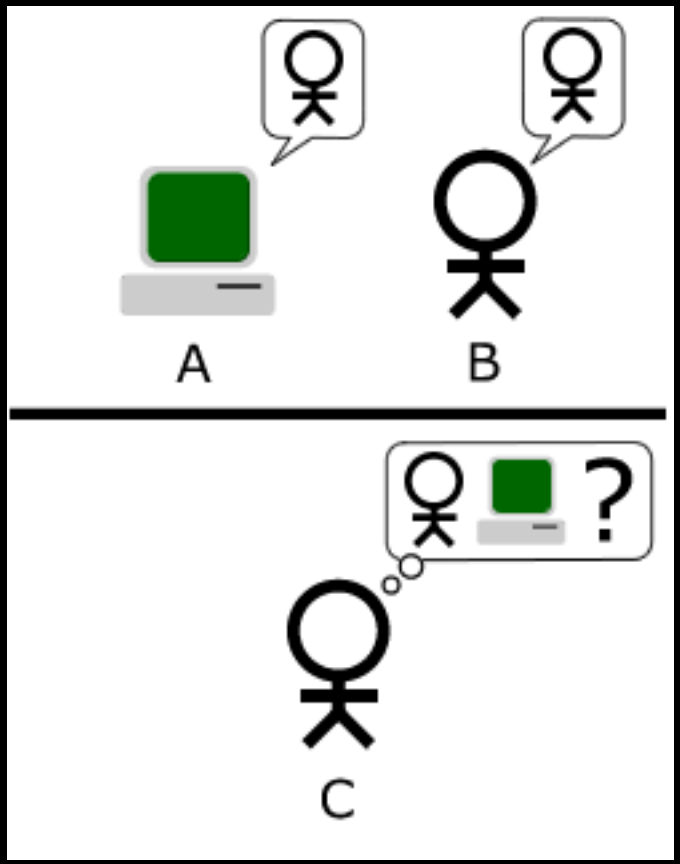
0.77 green
0.85 car
-0.34 on
0.09 display
-0.03 next
0.27 busy
1.08 street

top sentences for this image:

(4.03) A white city bus traveling down a street with traffic.
(3.95) A street with a green and white city bus traveling on it and other vehicles behind it.
(3.60) An electric bus is driving down a city street.
(3.47) A buss stopped at a bus stop on a city street
(3.22) A bus is traveling down a city street that does not have much traffic.

Stanford Vision Lab

Turing Test



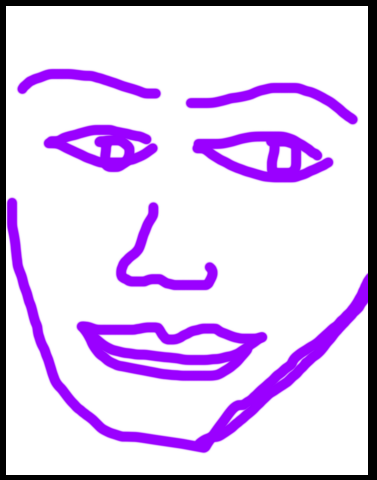
The Chinese Room

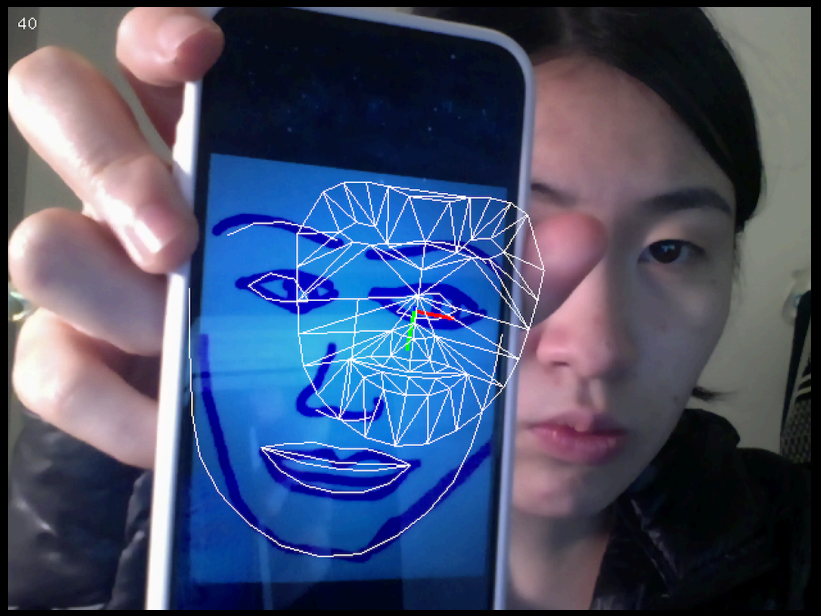
Concept

Does a machine think when it sees? How does it process the content of the images? How can subjectivity be involved in this process?

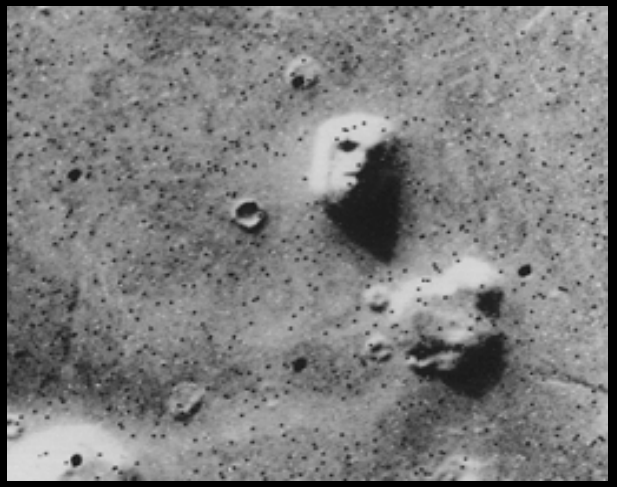
With these questions, this project will explore the principles of computer vision and its implications in our living environment. When computers look at our life, what content are they interested in watching? Will their opinions impact on our decisions and living conditions? Therefore, the subjectivity of computer vision will be the focus of this project. More specifically, the content that the computer will interpret will be human faces.

Facial Recognition





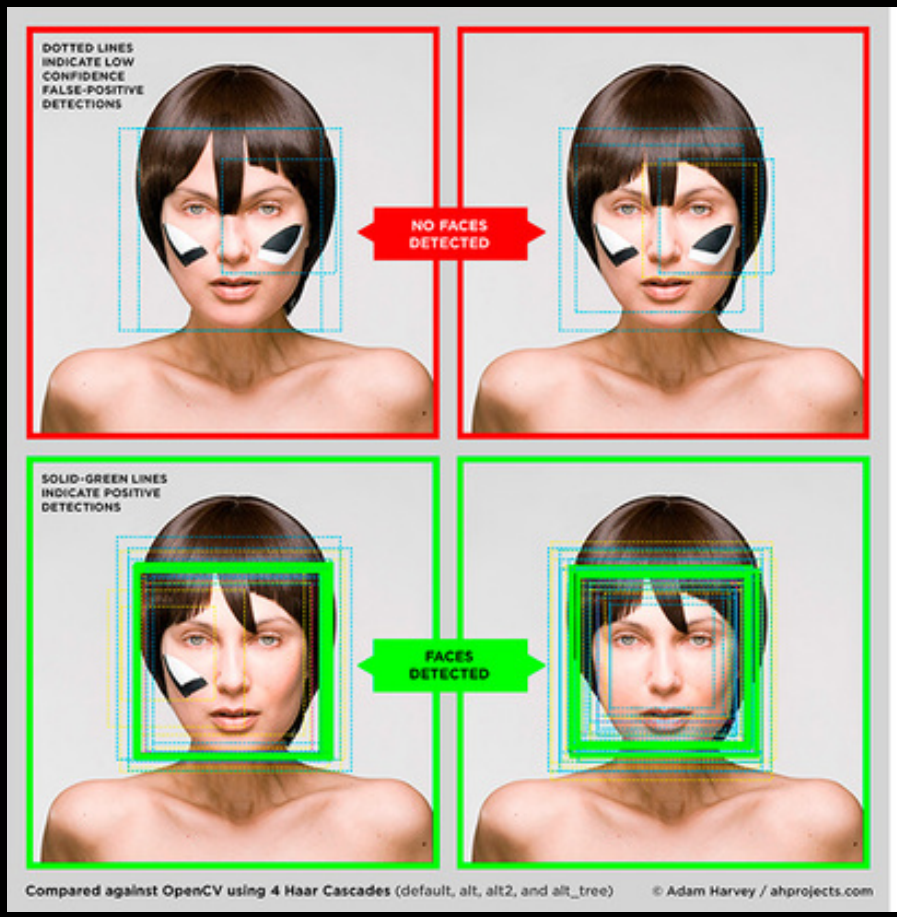
Reference - Pareidolia, Google Faces



Onformative, 2013

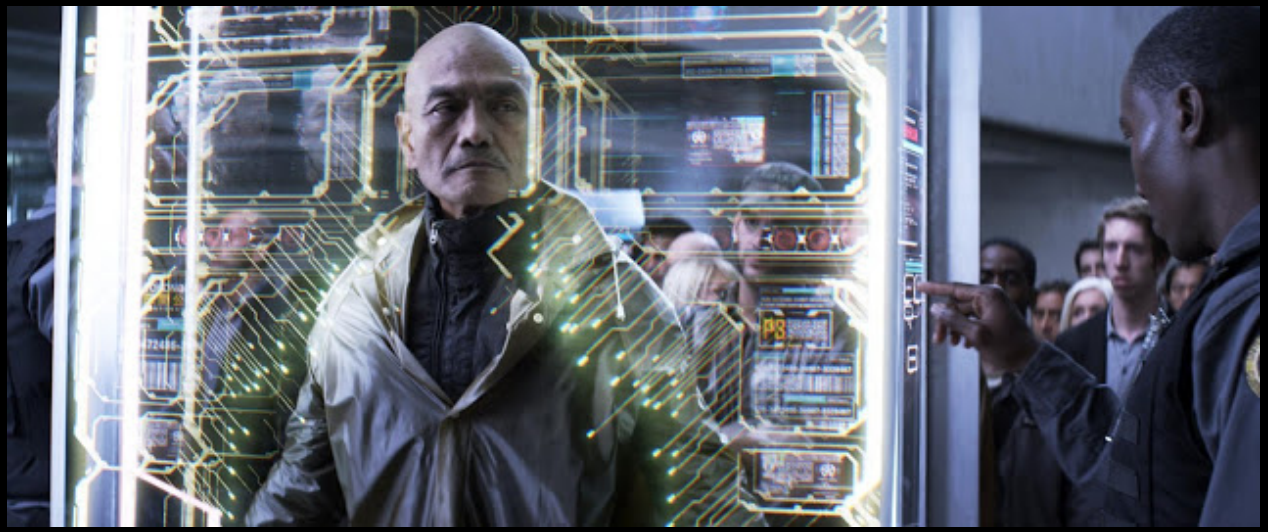
Lena

Reference - CV Dazzle



Adam Harvey

Reference - Total Recall



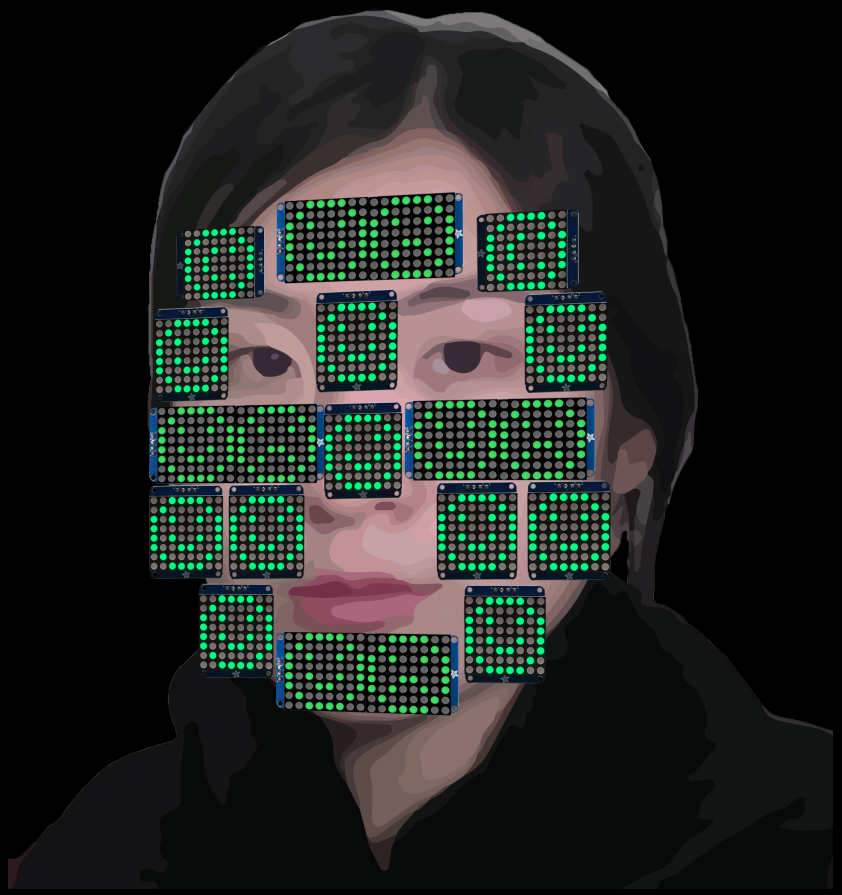
2012

Execution

There are two main components in this project:

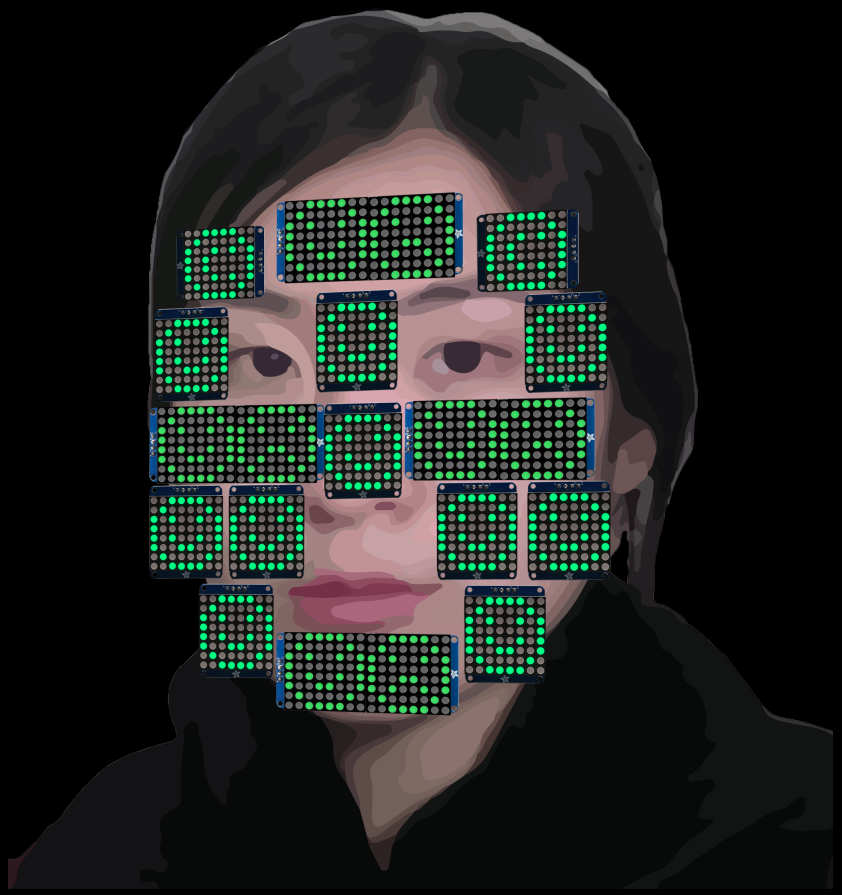
1. **LED Matrices Mask (P-Comp):**

A wearable mask will be made by assembling various sizes of LED matrices (8x8 and 16x8). Different patterns will be displayed on the mask for the computer to detect and interpret.

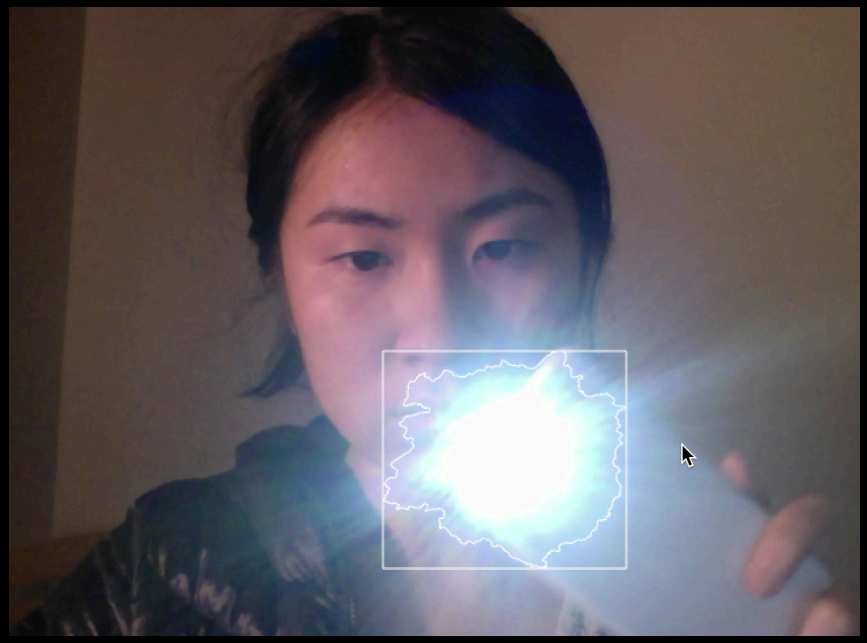


Execution

2. openFrameworks sketch (with libraries: ofxCV, ofxFaceTracker): A OF sketch will be used to detect the patterns on the mask. The patterns will be deformed and recreated, to represent the computer's subjectivity. The outcome will be very different from the original pattern.



Challenges



- Sending signals of bitmaps to multiple LED matrices. Can I do it on one Arduino?
- Combining the facial recognition code with basic computer vision example code.
- Manipulating the meshes to recreate the image captured from the web cam.