

Now painting with layer: 1, press a key to switch

Press d to clear screen



Andreas Refsgaard



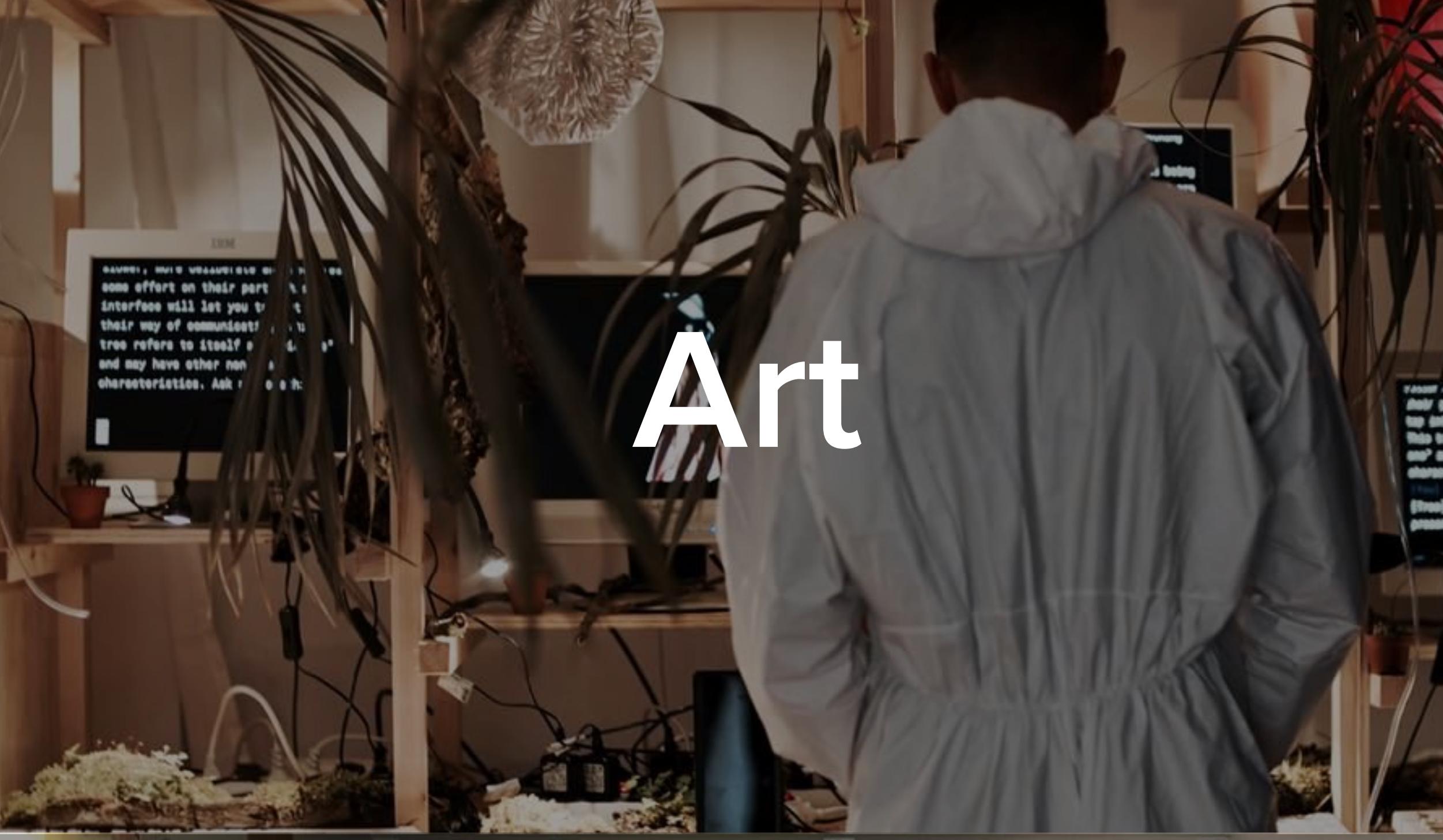
About me

A faded, grayscale portrait of a man with dark hair and a well-groomed mustache. He has a neutral expression and is looking directly at the viewer. This image serves as a background for the text elements.

Interaction designer
+ creative coder

IDP from CIID 2015

Tues 14th	Wed 15th	Thurs 16th	Fri 17th
Morning 10.00 - 12.00			
Intro lecture The philosophy behind prototyping with Machine Learning Teachable Machine icebreaker	ml5js continued: Make your own Neural Network, Speech, Face, COCO-SSD, etc	Connecting Runway to other software (p5js, Grasshopper) Walkthrough of models + small exercise	Morning check in Individual/Group Work on brief (with mentoring)
Afternoon 13 - 15.00			
Intro to ML5js Classification, regression, poseNet Tips and tricks for training quick'n'dirty models for interactive prototypes	Introduction to RunwayML Running local+remote models Input types, export options, chaining models	Training a StyleGAN or GPT-2 with your own data Tips + tricks for gathering data Mini-assignment brief	Presentations Reflection Q&A



Non Disclosure Agreement

This non disclosure agreement is entered into on [Agreement.CreatedDate] between [Owner.Name] (Owner) and [Recipient.Name] (Recipient).

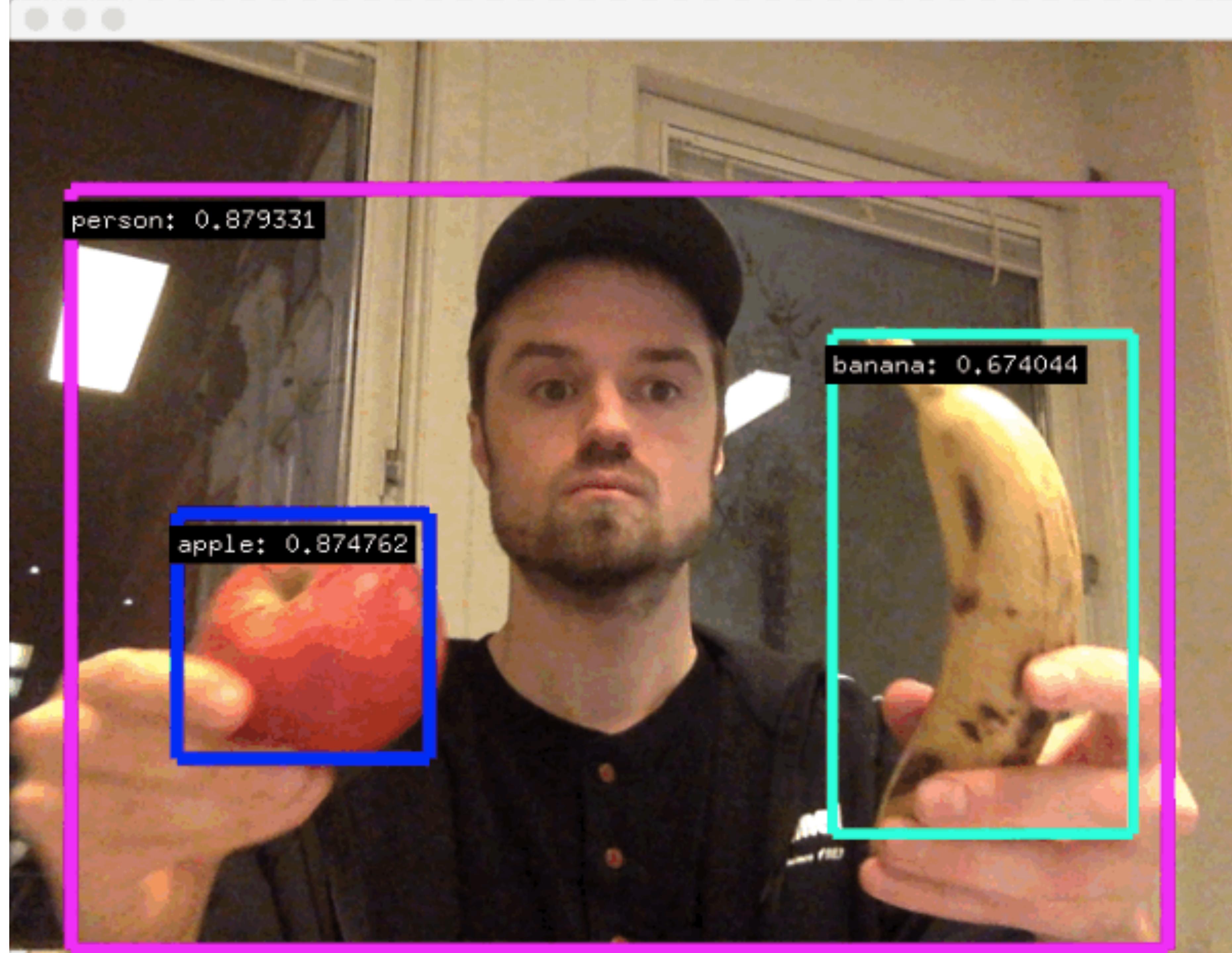
The Owner acknowledges the Recipient may receive information regarding the Owner's business, practices, or other properties that may be considered confidential. Therefore, the Parties are in agreement to the following terms and conditions of this agreement:

Confidentiality

PandaTip: This NDA template requires the vendor or subcontractor to treat all information that is not publicly available to others as confidential.

For the duration of this non disclosure agreement, any information the Recipient may come into contact with that is not public knowledge and is made only available through contact with the Owner shall be deemed as confidential information.

Playful Machine Learning



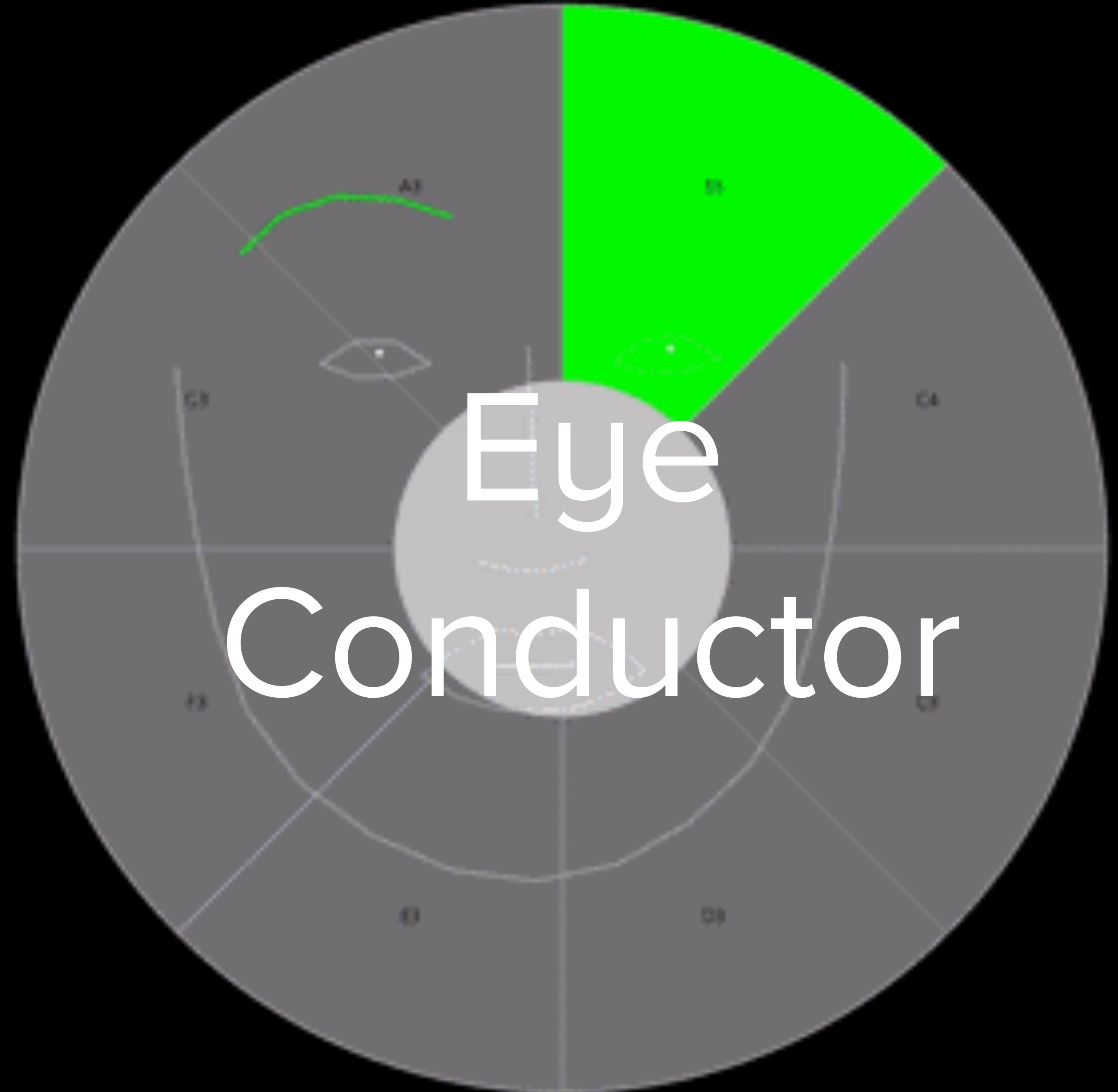
Inputs & Outputs

Waveform

A waveform is the shape
and form of a signal.

using [something]
to control
[something else]

Eye Conductor







Kasper

Design Challenge

User Research

Prototypes

Next Steps



Design Challenge

User Research

Prototypes

Next Steps



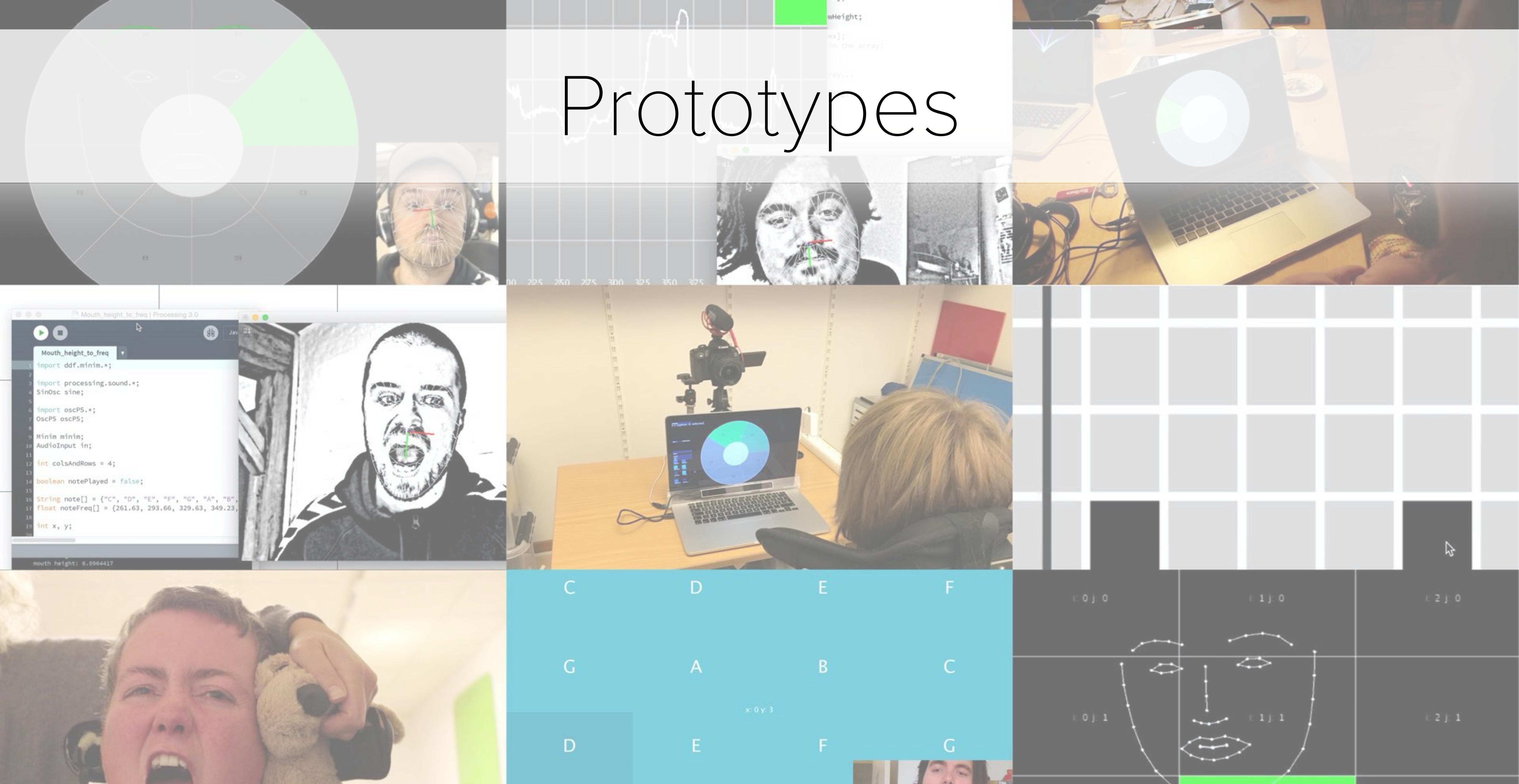
Design Challenge

User Research

Prototypes

Next Steps

Prototypes



Design Challenge

User Research

Prototypes



C

D

E

F

G

A

B

C

x: 3 y: 0

D

E

F

G





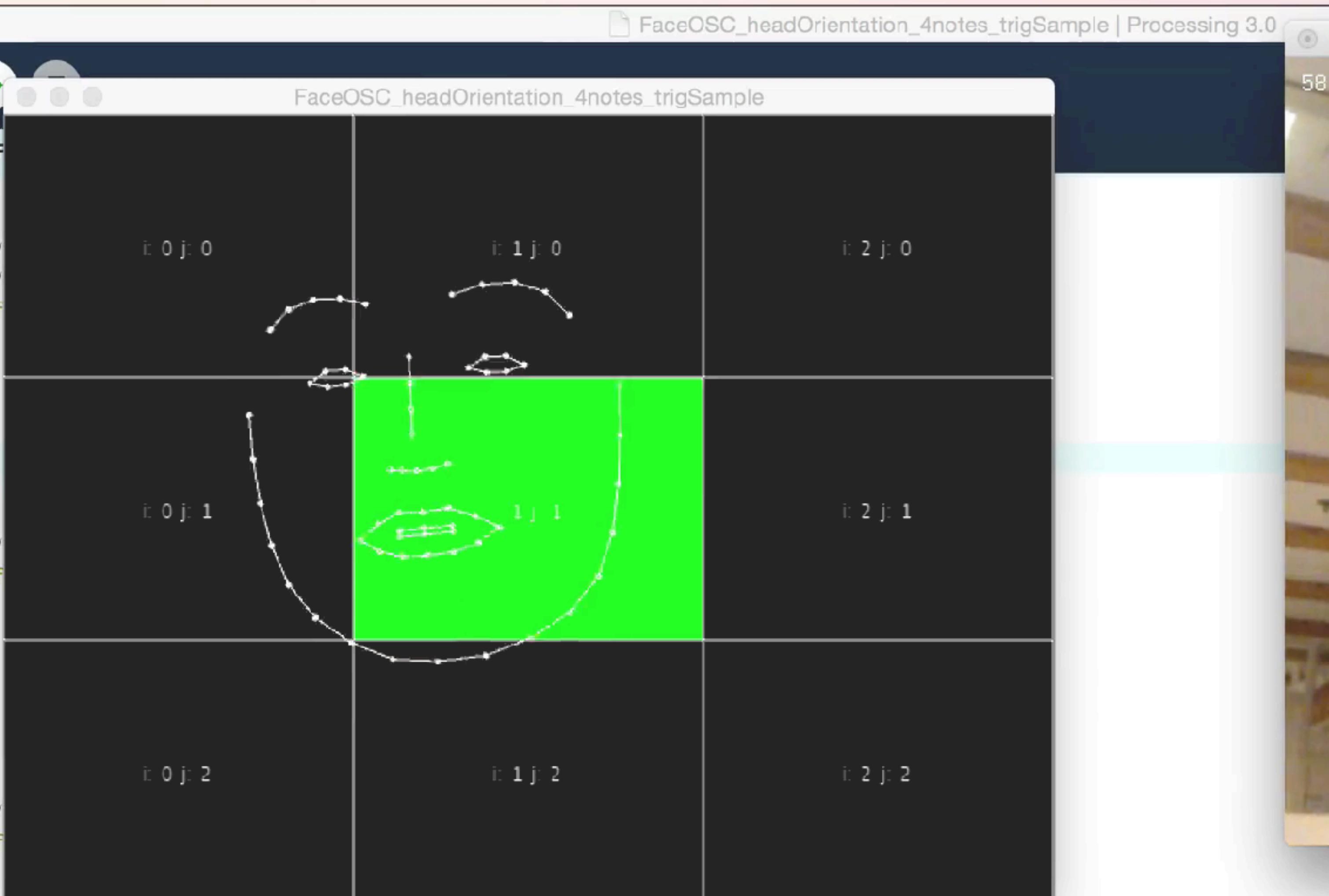
Face tracking

Design Challenge

User Research

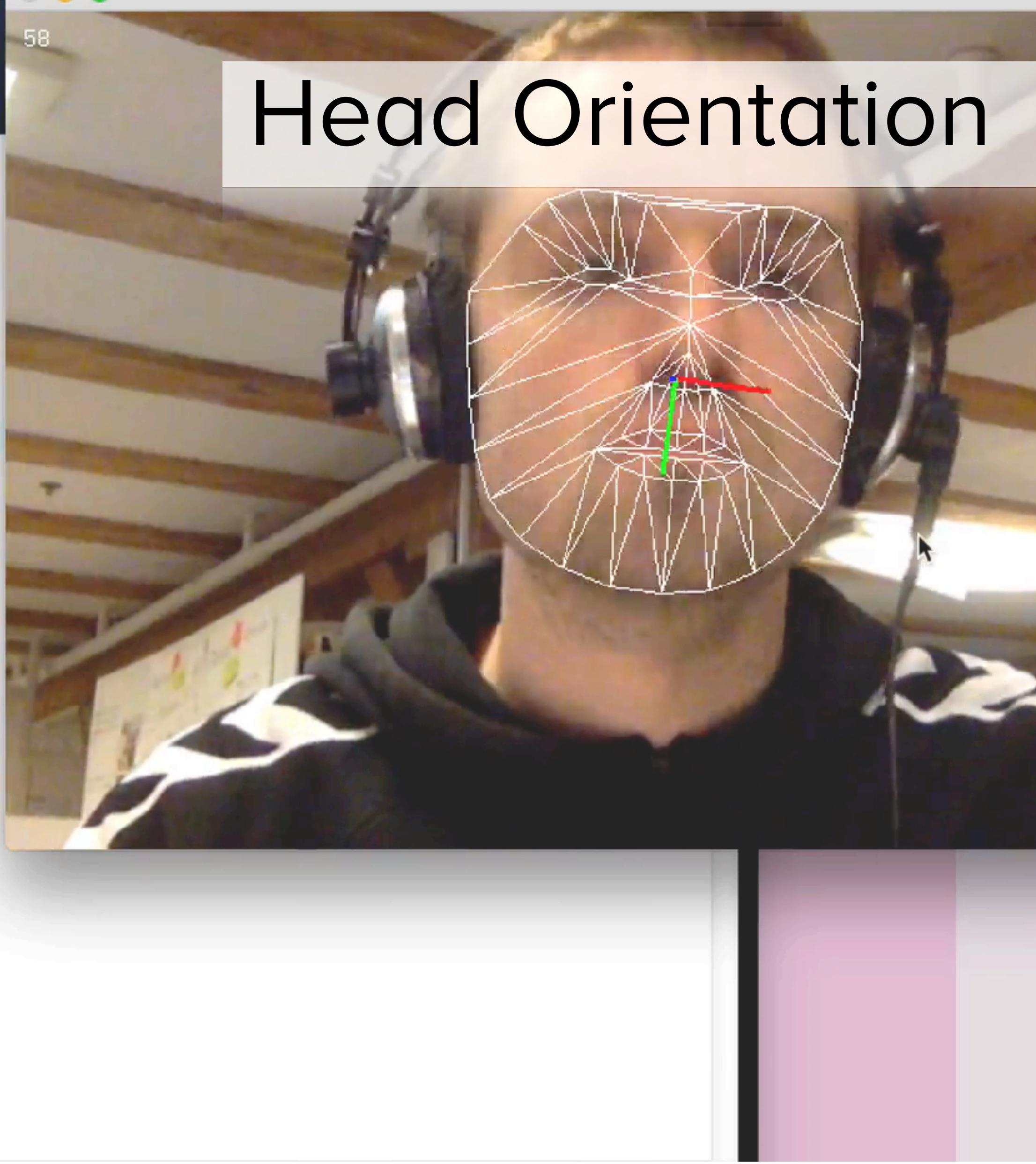
Prototypes

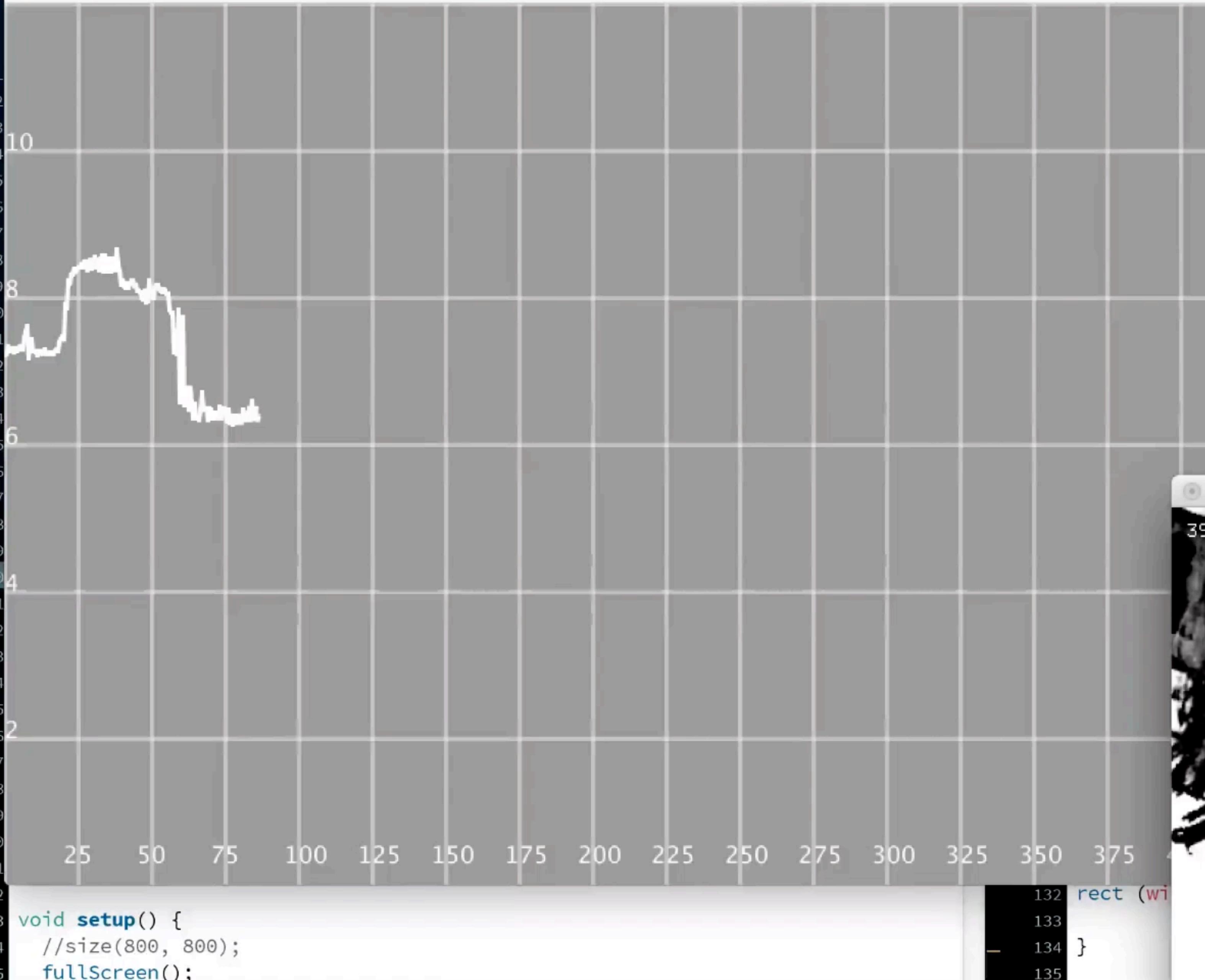
Next Steps



```
pvector.y = 1,  
} else if (abs(poseOrientation.x) < abs(poseOrientation.y)) {  
pVector.x = 1;  
}
```

'Lower left
(pVector.x == 2 && pVector.y == 0) {
if (abs(poseOrientation.x) > abs(poseOrientation.y)) {





Eyebrow Switch



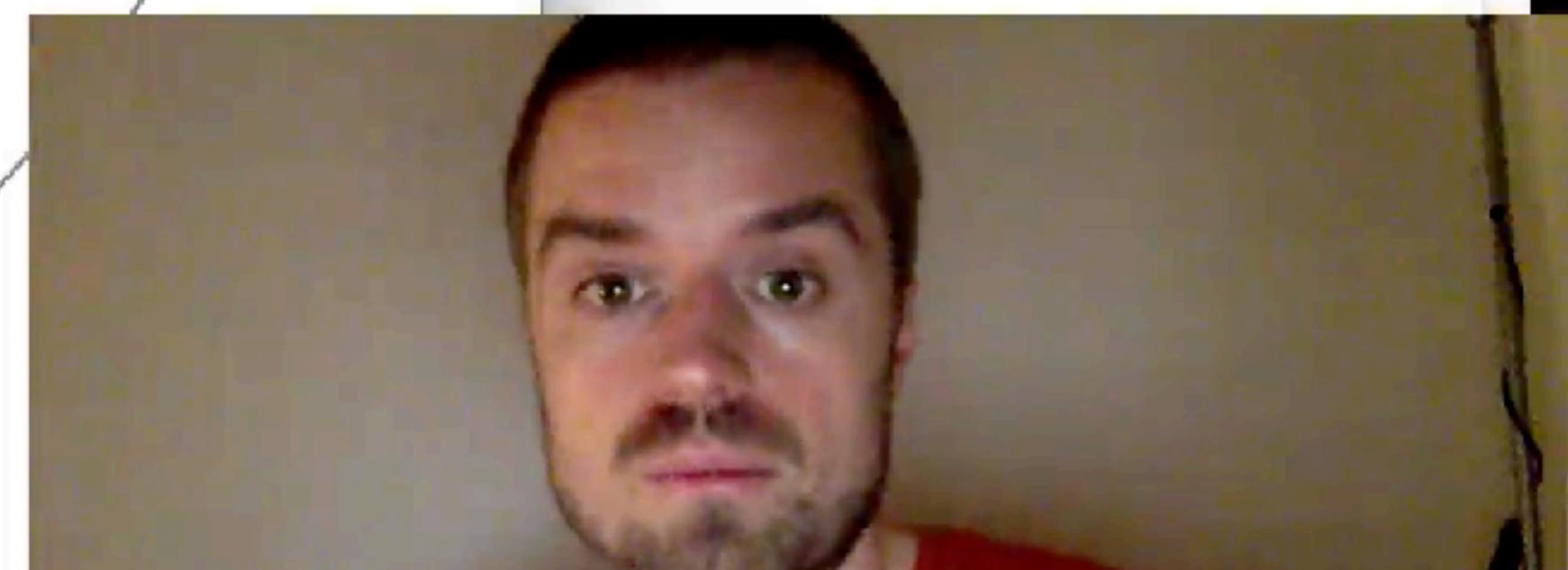
Design Challenge

User Research

Prototypes

Next Steps

Radial GUI



```
RadialMenu
```

```
1 // To avoid what is referred to as  
2 //for HCI (1) where everywhere a u  
3 //I have been experimenting with s  
4  
5 String[] options = { "Forward",  
6 // "For  
7 String[] options = { "Option 1", "  
8  
9 float diam, textdiam;  
10 int selected;  
11 int innerCircle = 100;  
12  
13 void setup() {  
14   size(800, 800);  
15   textAlign(CENTER, CENTER);  
16   //textAlign(CENTER);  
17   noStroke();  
18   smooth();  
19   diam = min(width, height) * 0.8;  
20   textdiam = diam/2.75;  
21 }  
22  
23 void draw() {  
24   background(255);  
25   fill(125);  
26   ellipse(width/2, height/2, diam+  
27   textdiam);  
28  
29   float mouseTheta = atan2(mouseY-  
30   height/2, mouseX - width/2);  
31   //atan2 returns a value in the r  
32   //So you add TWO_PI (only) when  
33   float piTheta = mouseTheta>=0?mo  
34  
35 }
```

```
ButtonGroup
```

```
this, cx, cy, 50));  
explodingButton(this, cx, cy, 40);  
  
this, cx, cy, 30));  
group(groupCenter, groupRadius);  
up(explodingButtons);  
  
upCircle();  
); i++) {  
  explodingButton) explodingButtons.get(i);  
}
```

No note (option 0) selected.

eyeBrow: 13.4

15.00 EYEBROWTHRESHOLD

USERNAME

USERNAMES

ANDREAS

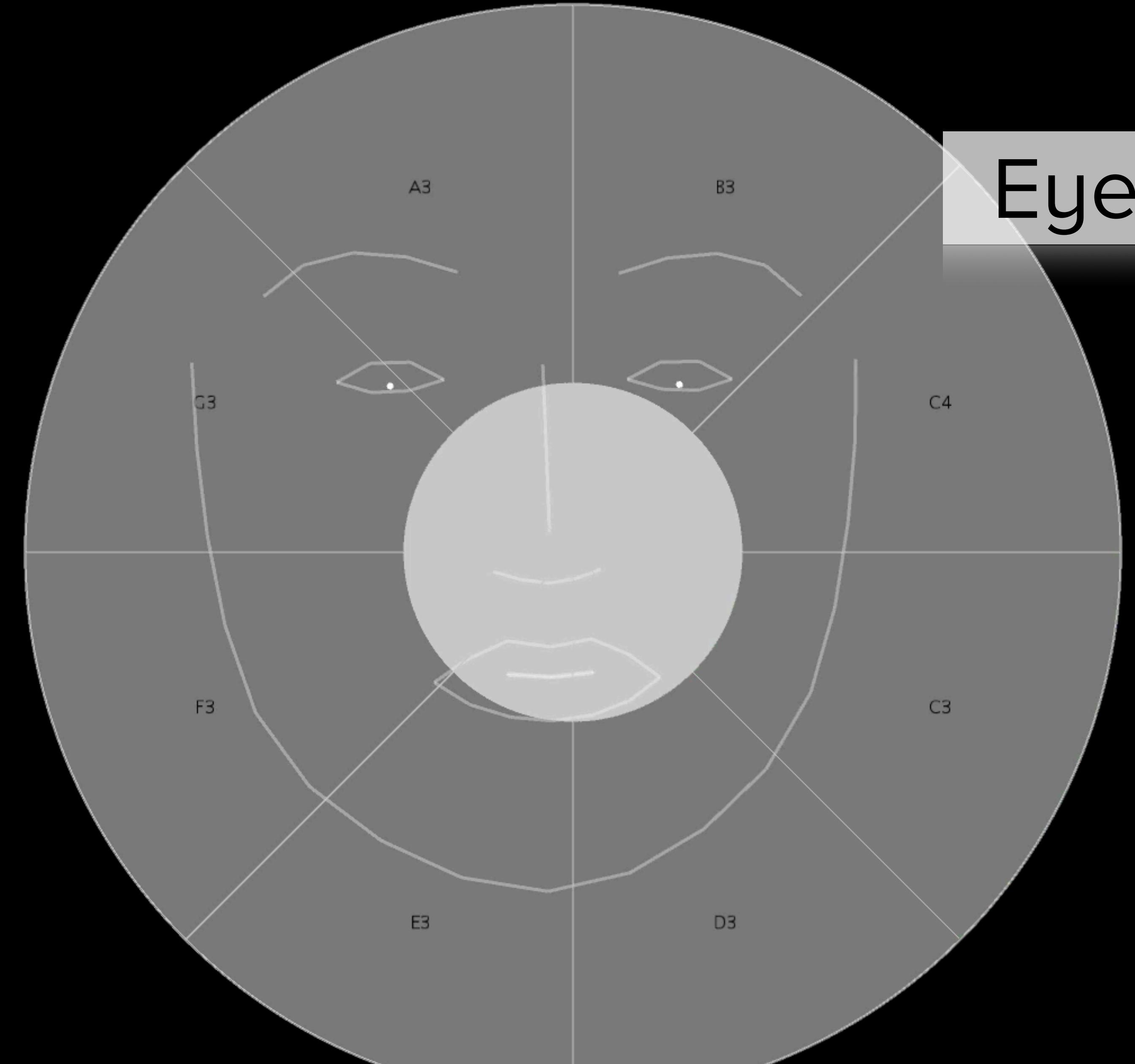
ANDREW

LOADSETTINGS

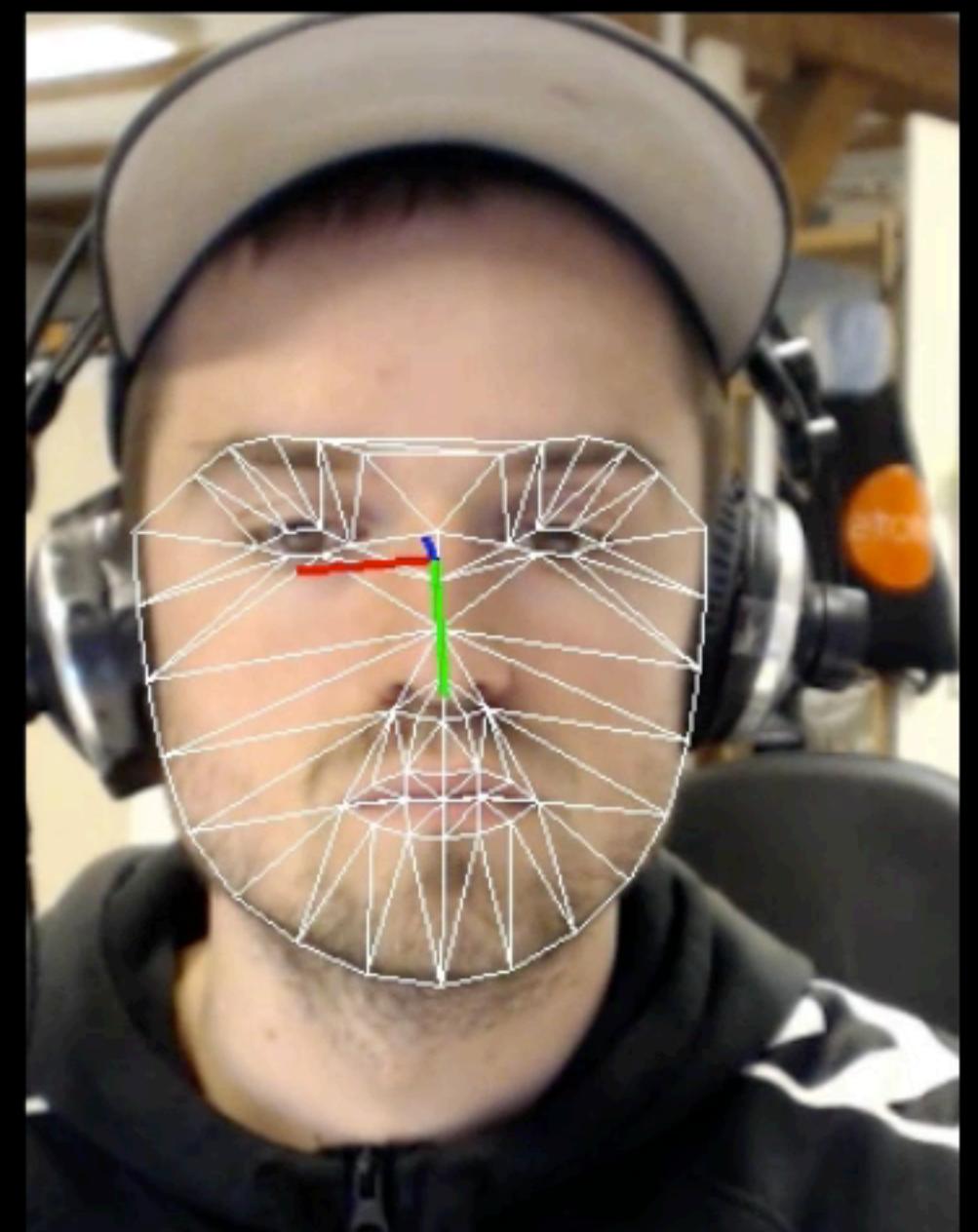
SAVESettings

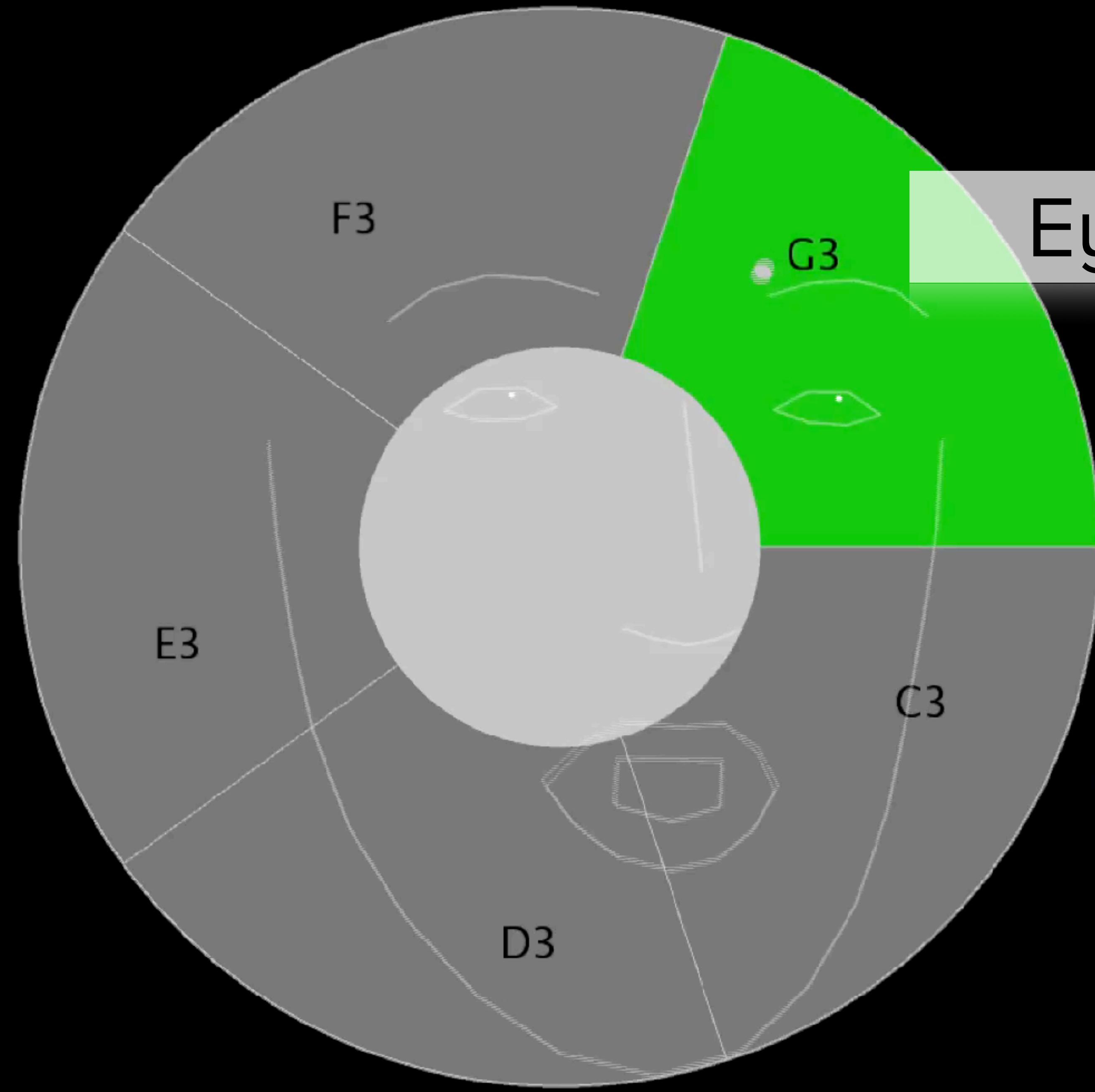
MOUTHVOLUME

SHOWREFERENCEFACE



Eye + Eyebrows



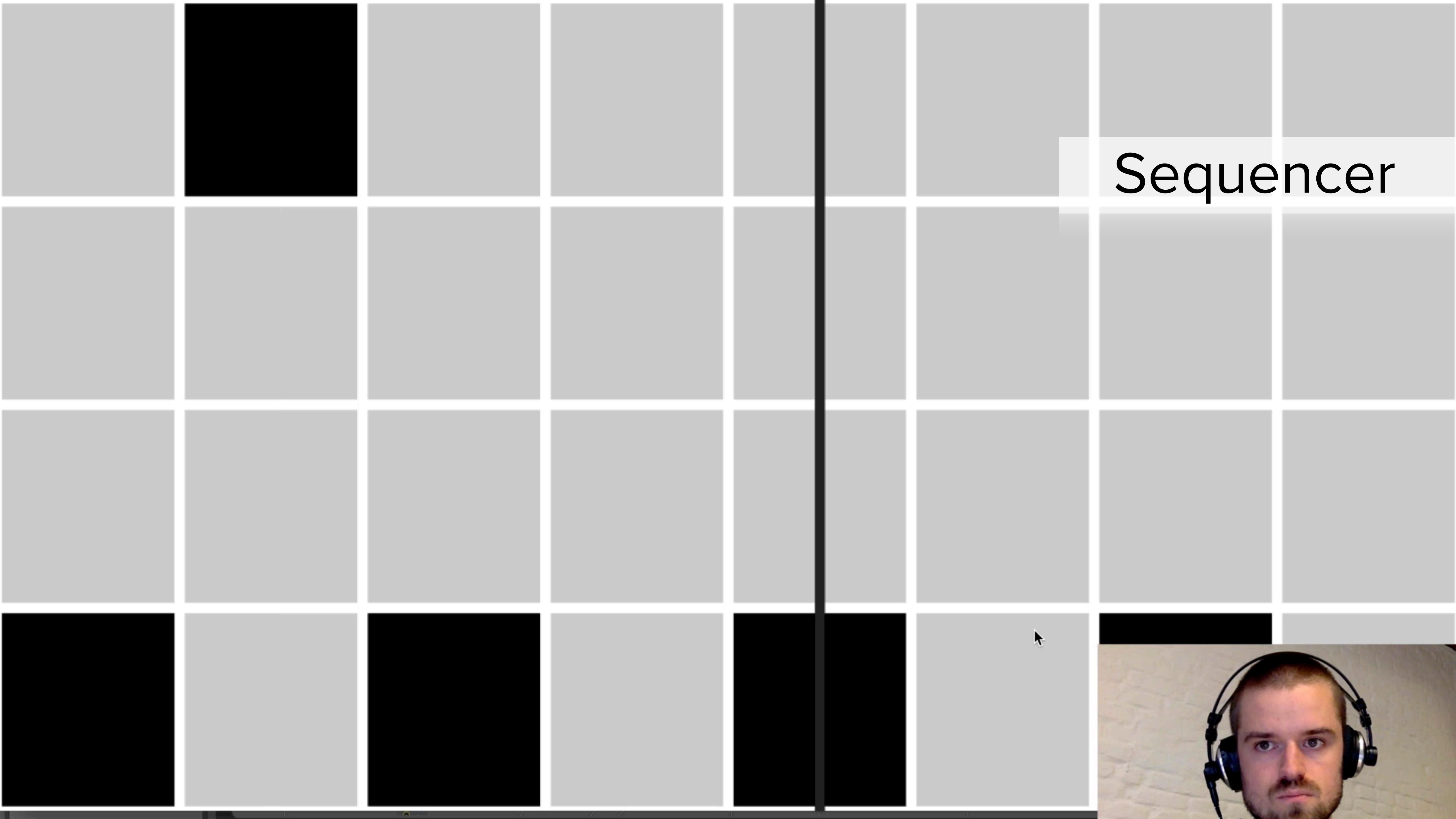


Design Challenge

User Research

Prototypes

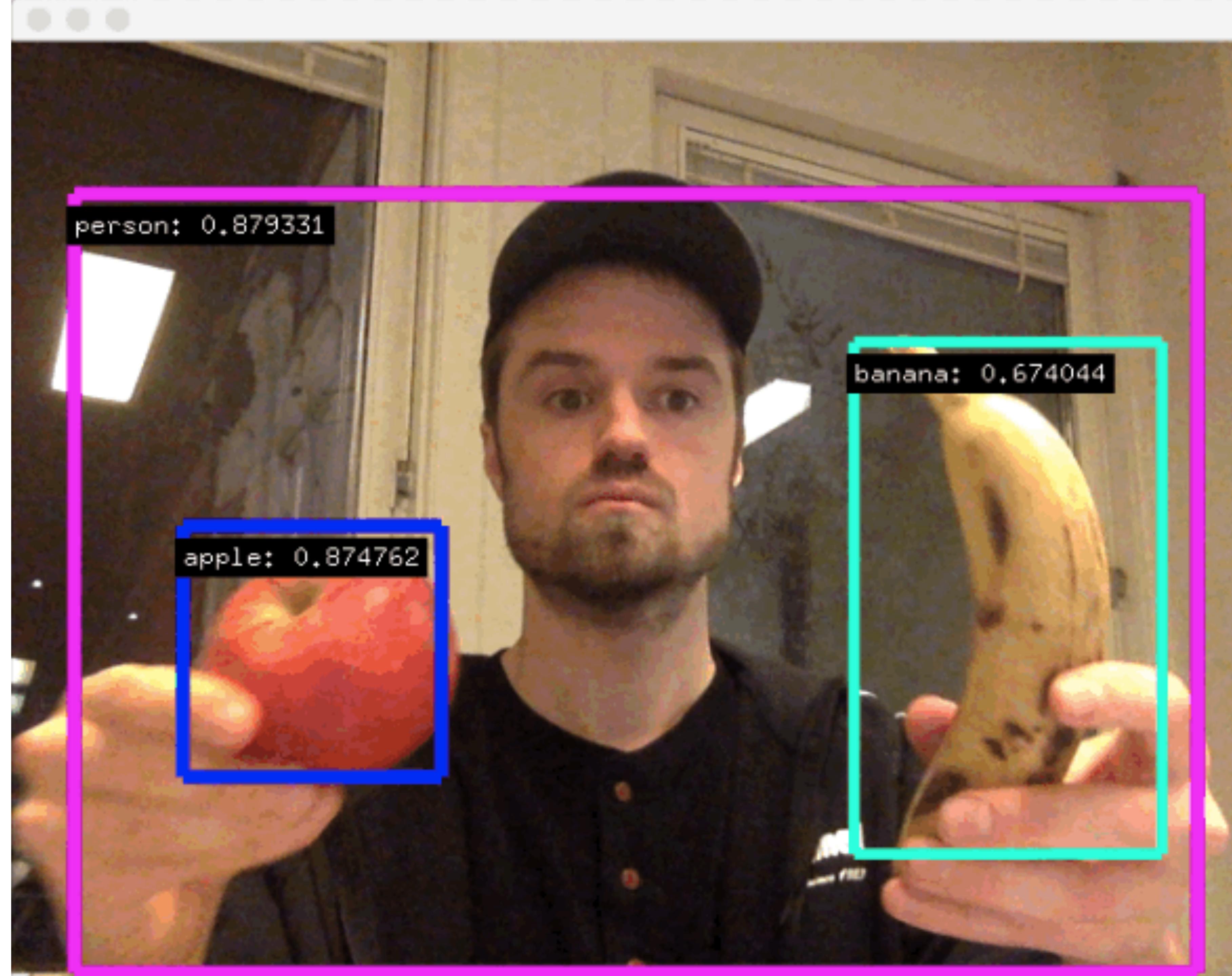
Sequencer



Arpeggio



Machine Learning



Machine Learning



Wekinator File View Actions

17 73% Mon 20:46

New Project

OSC In OSC Out

Values Examples Configure

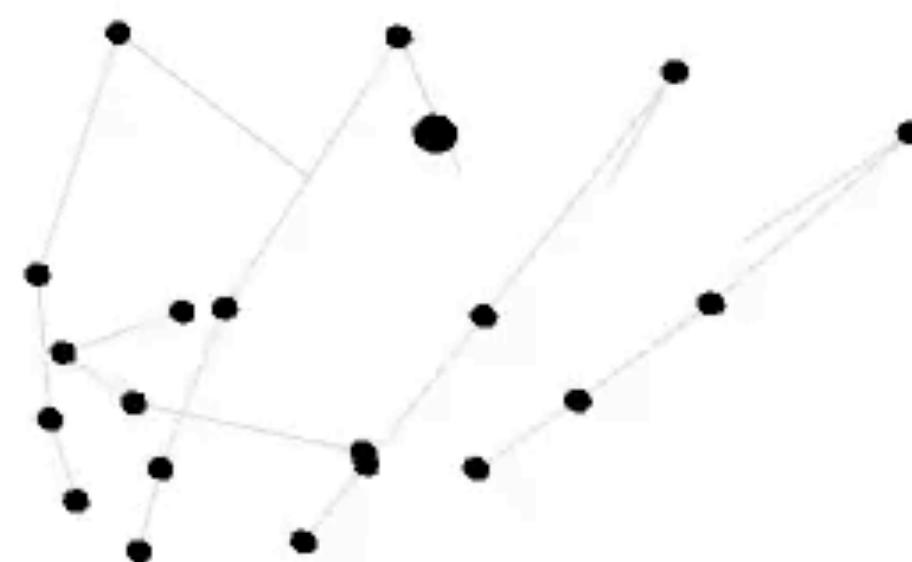
randomize

Models

outputs-1 1 66

Stop Recording Train Run Delete last recording Re-add last recording

Status: New examples recorded



Input - ML - Output

```
if (classificationResult == 'A') {  
    //do something  
} else if (classificationResult == 'B') {  
    //do something else  
}
```

New Pro

OSC In OSC Out

Start Recording

Train

Stop running

Delete last recording (#6)

Re-add last recording

Status: Running – waiting for inputs to arrive

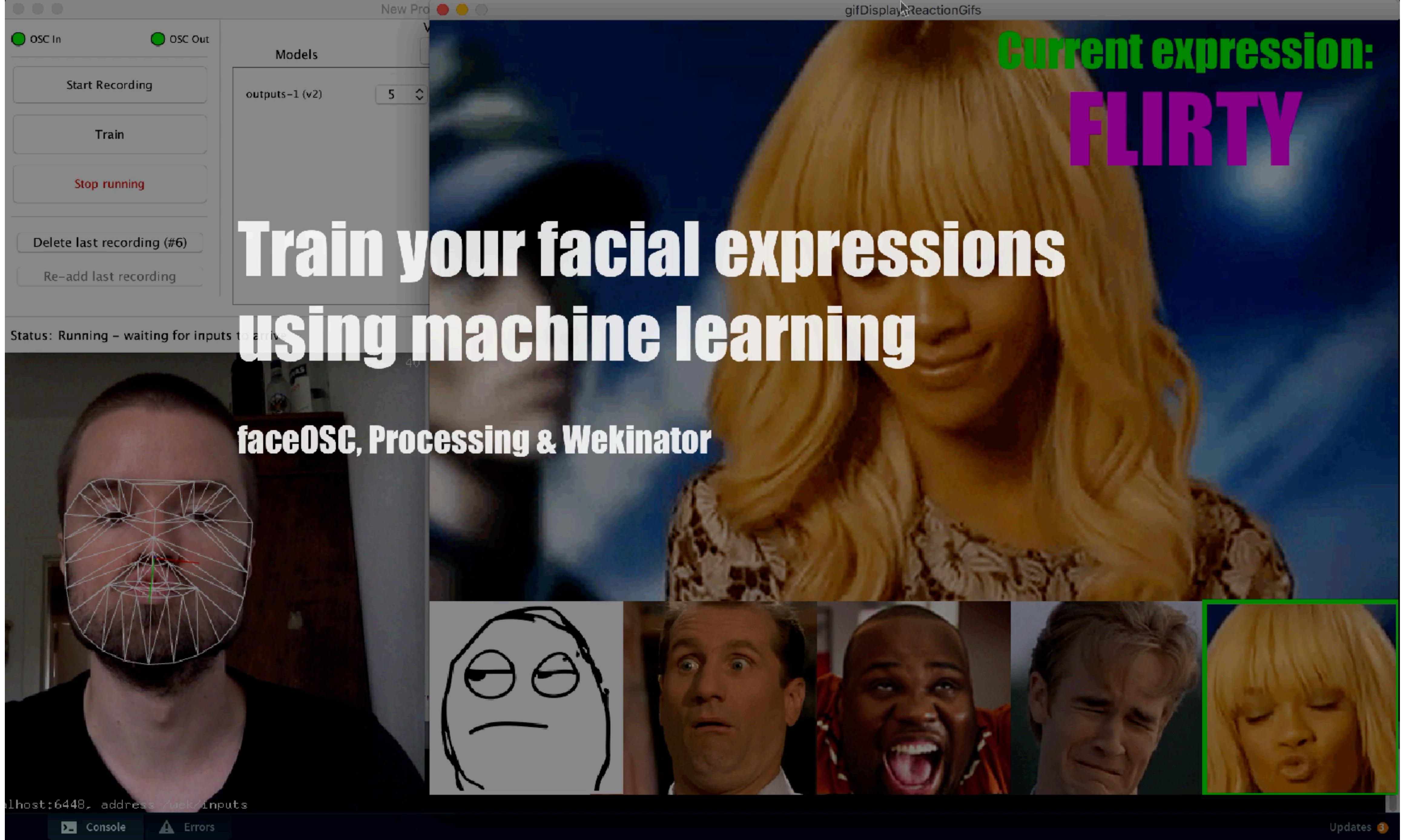
Models

outputs-1 (v2) 5

Current expression:
FLIRTY

Train your facial expressions using machine learning

faceOSC, Processing & Wekinator



localhost:6448, address /wek/inputs

Console Errors Updates 3

New Project

Values Examples Configure

Models randomize

OSC In OSC Out

Start Recording

Train

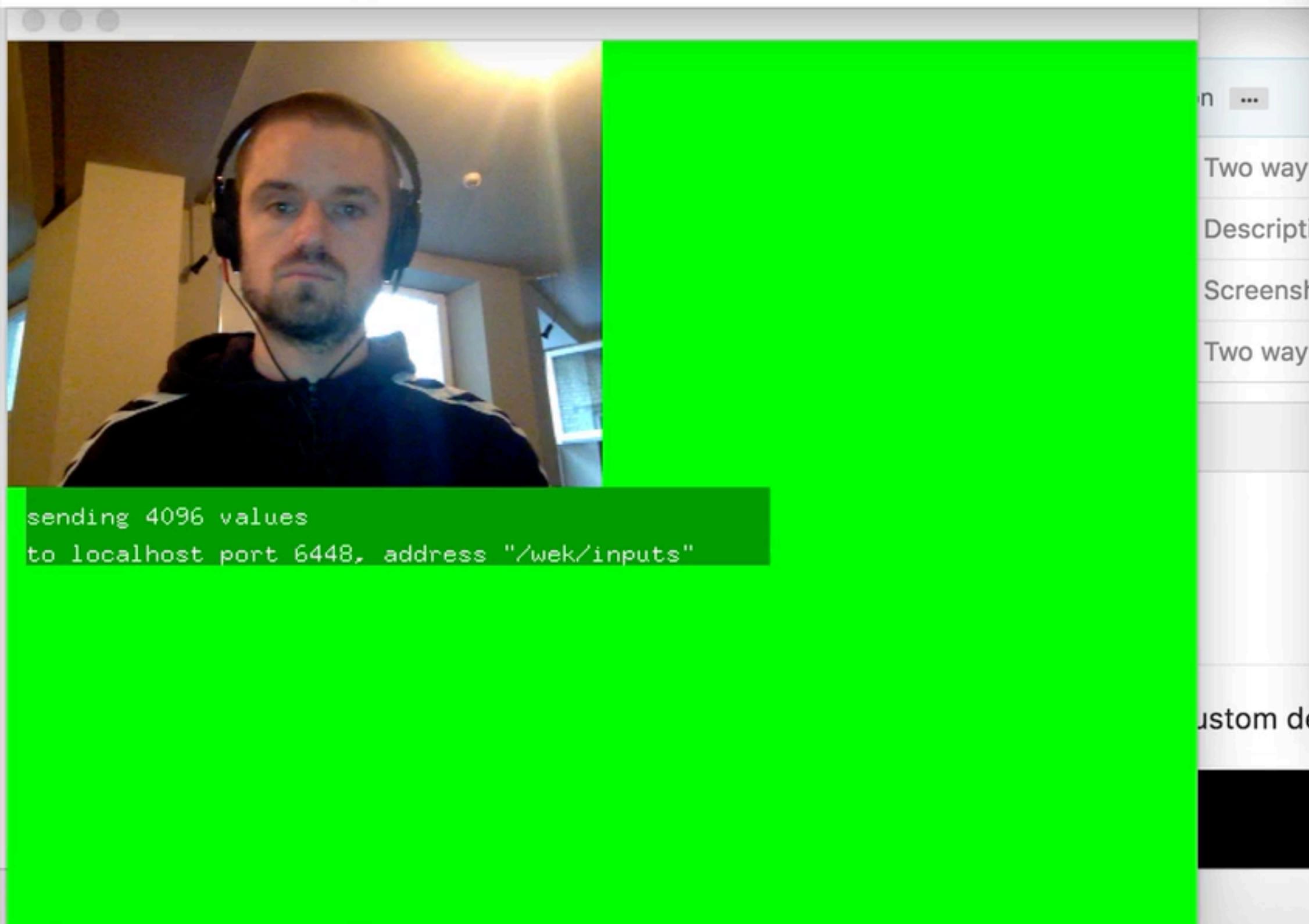
Stop running

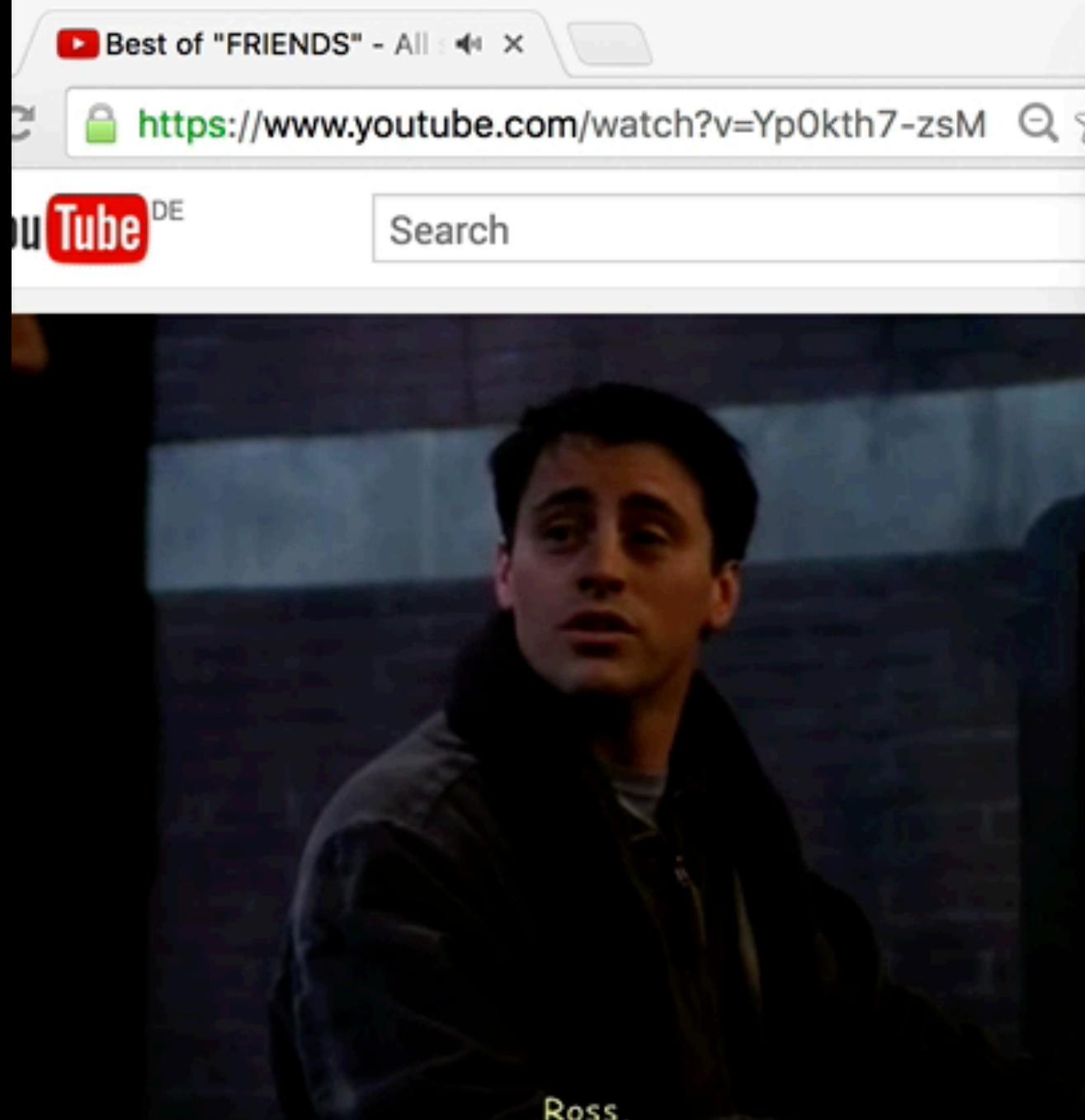
Delete last recording (#11)

Re-add last recording

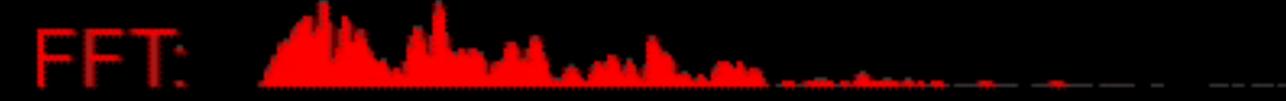
outputs-1 (v6) 5 120

Status: Running – waiting for inputs to arrive

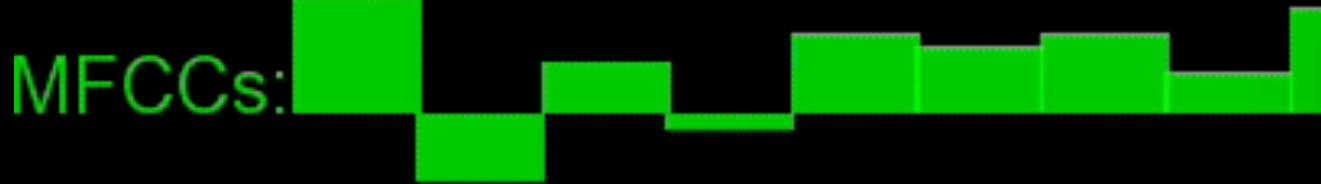




FFT:



MFCCs:

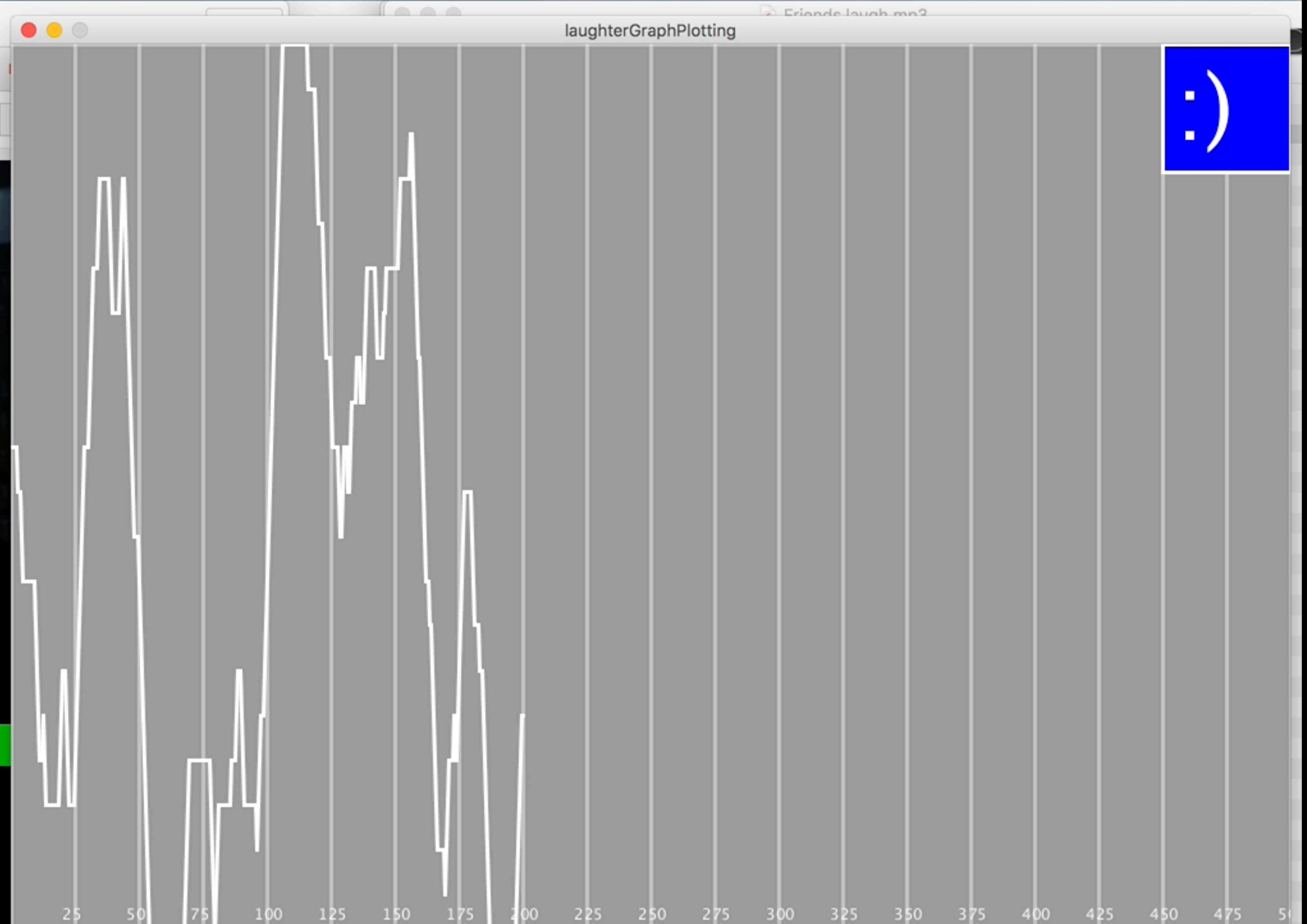


ConstQ:

Peak Frequency: 818.26

Spectral Centroid: 0.034624

RMS: 0.10



(Supervised) Machine Learning

Prototype without (much) code

Iterate faster

Let users train and decide the interactions

Use complex inputs

Try to make the other expression.

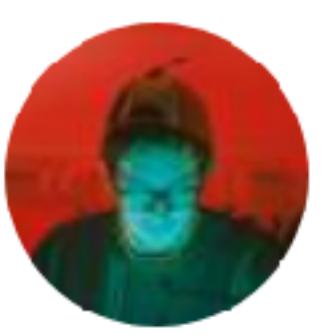




Teach a machine using your camera,
live in the browser. No coding required.

 Let's Go!

or [skip the tutorial](#)



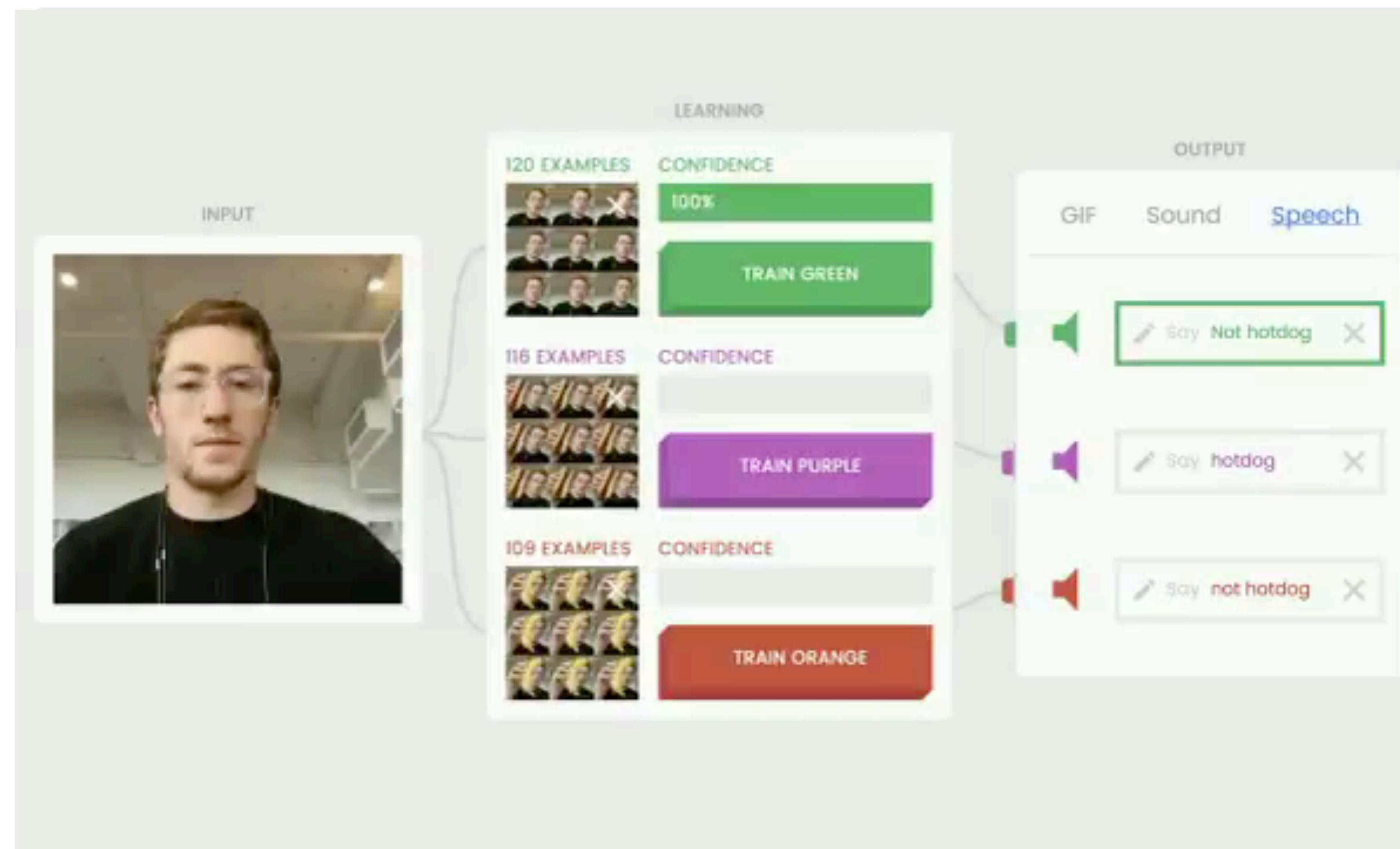
Barron

@WarronBebster

Follow



I used **#teachablemachine** to make
@siliconhbo's Not Hotdog app:

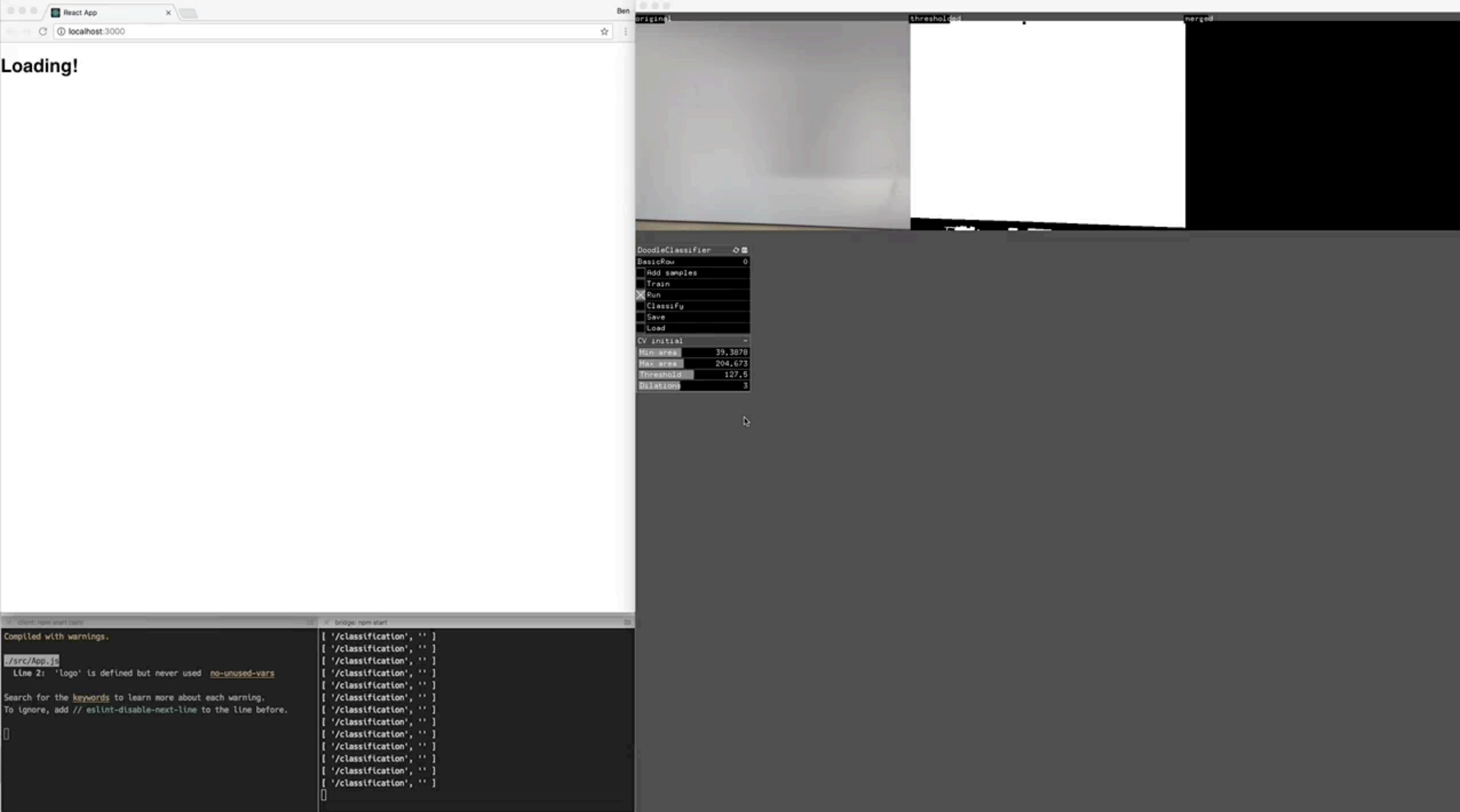


teachablemachine.withgoogle.com/v1/

Please visit this website in Google Chrome







IS IT FUNKY?



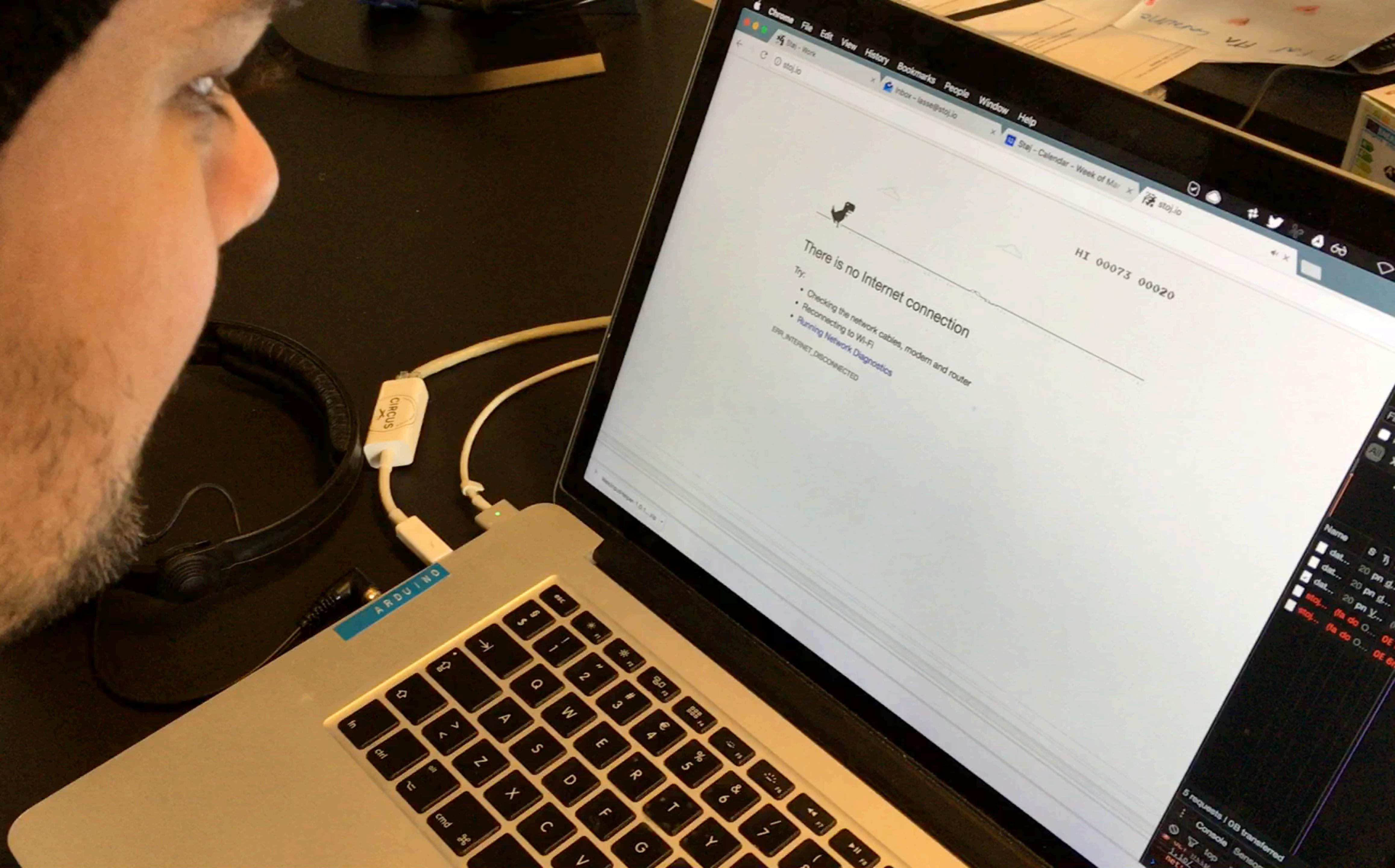
Prince

INSTRUCTIONS:
Click an image to get it
classified as funky or boring
Press ENTER for new image search

Click an image to have it
classified as either
boring or funky



FUNK SCORE: 10



There is no Internet connection

Try:

- Checking the network cables, modem and router
- Reconnecting to Wi-Fi
- Running Network Diagnostics

ERR_INTERNET_DISCONNECTED

Sound controlled
Wolfenstein



FLOOR	SCORE	LIVES	HEALTH	AMMO
1	0	3	100%	16



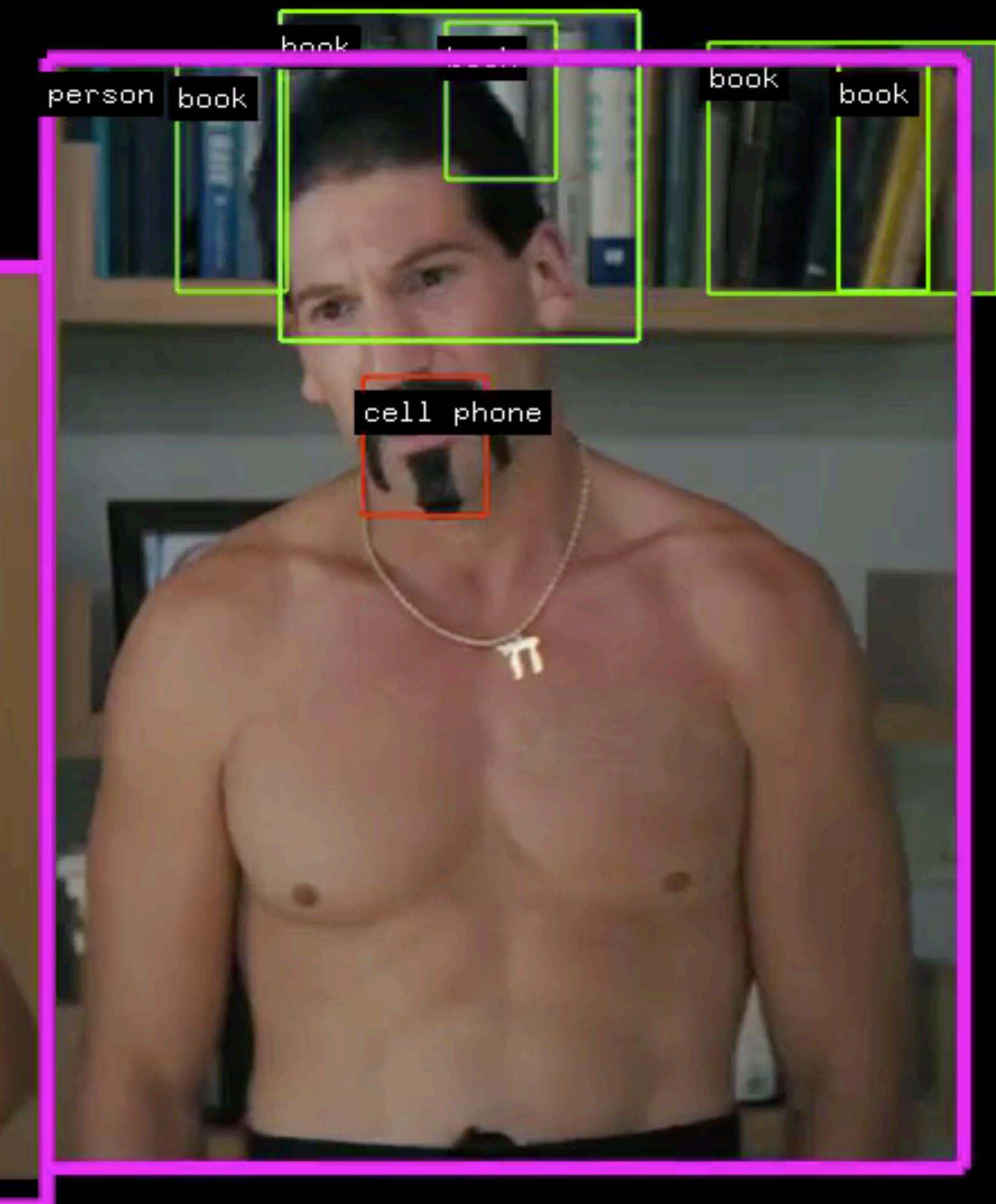
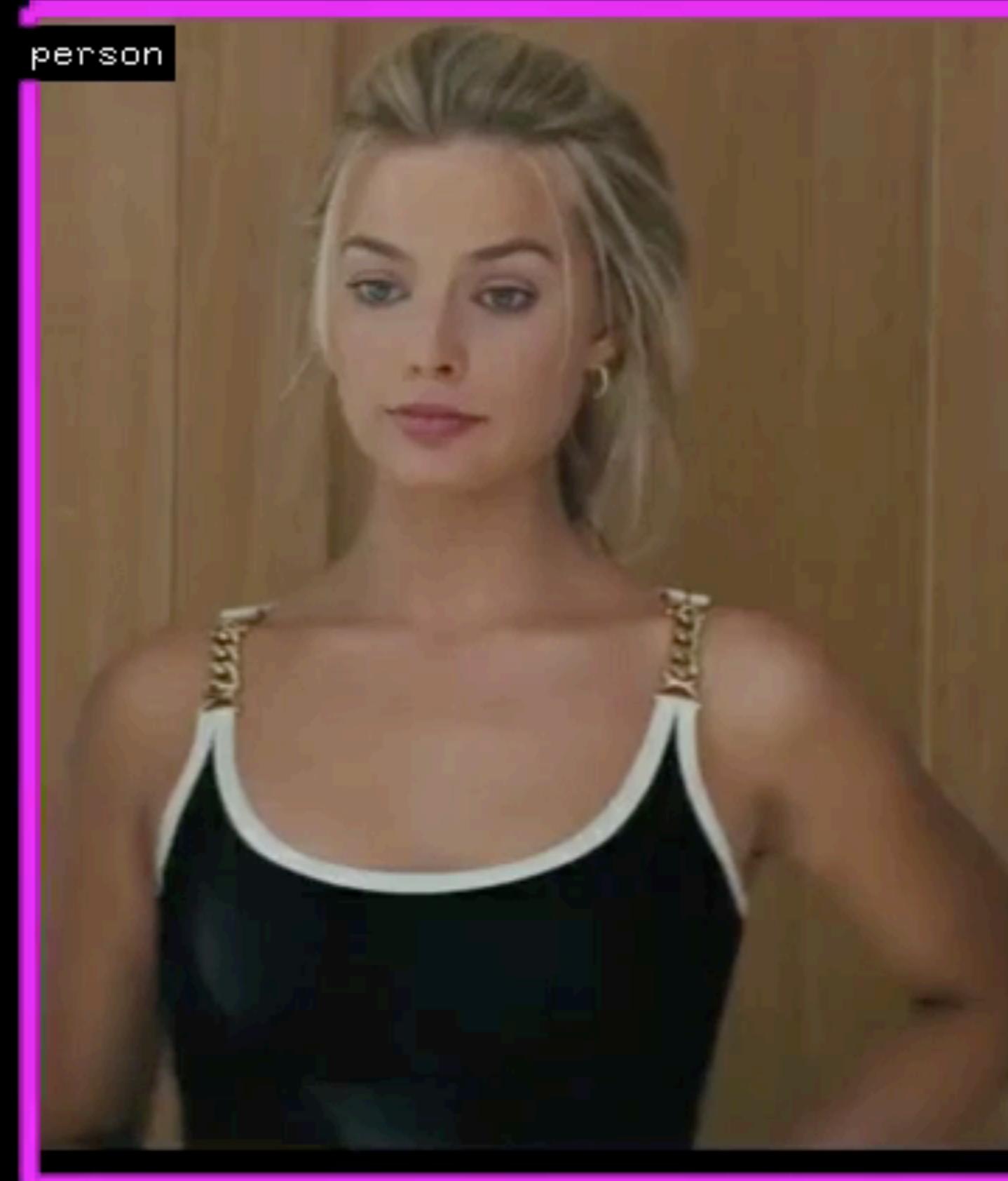
A close-up photograph of a woman's face in profile, facing right. She has dark hair and is wearing a dark top. Her gaze is directed downwards towards a smartphone she is holding. The background is blurred, showing what appears to be a city street.

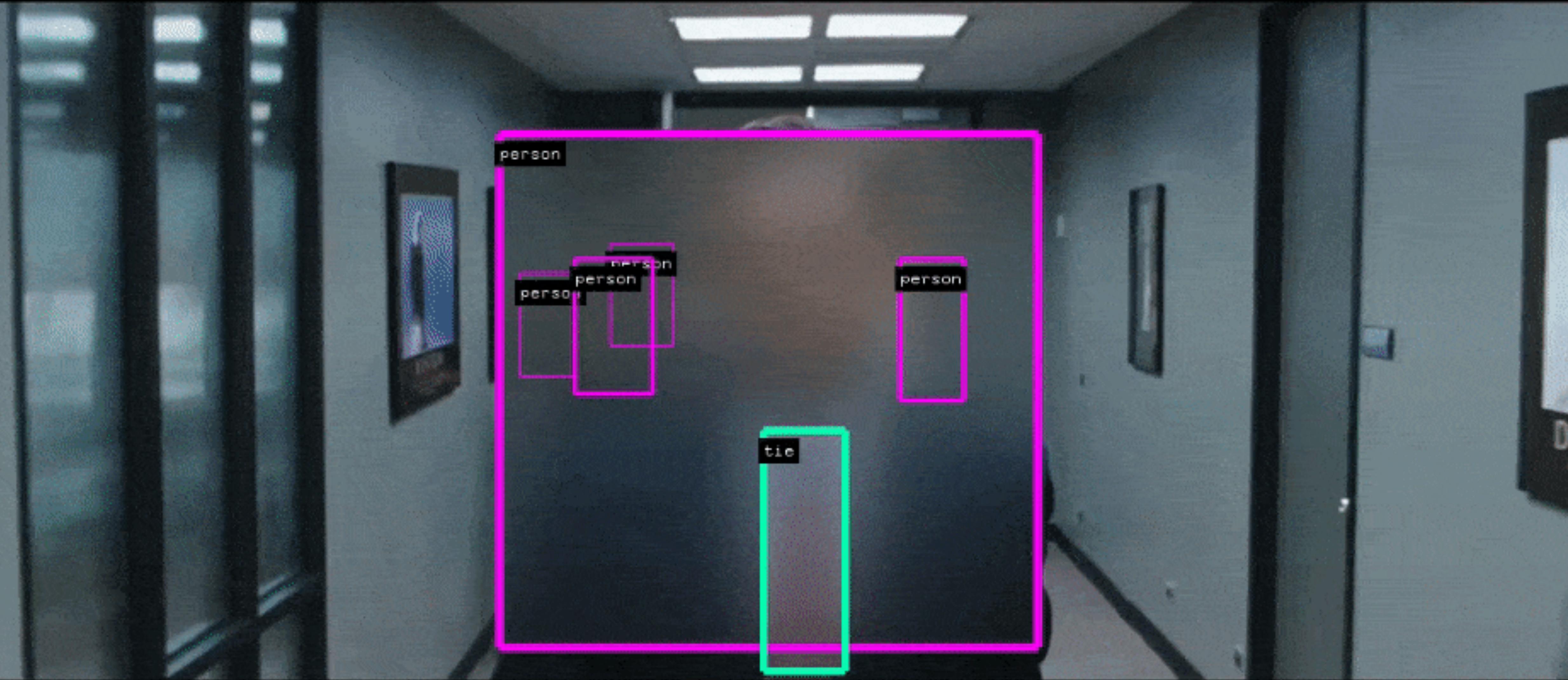
Future Self : 3rd July, 2021

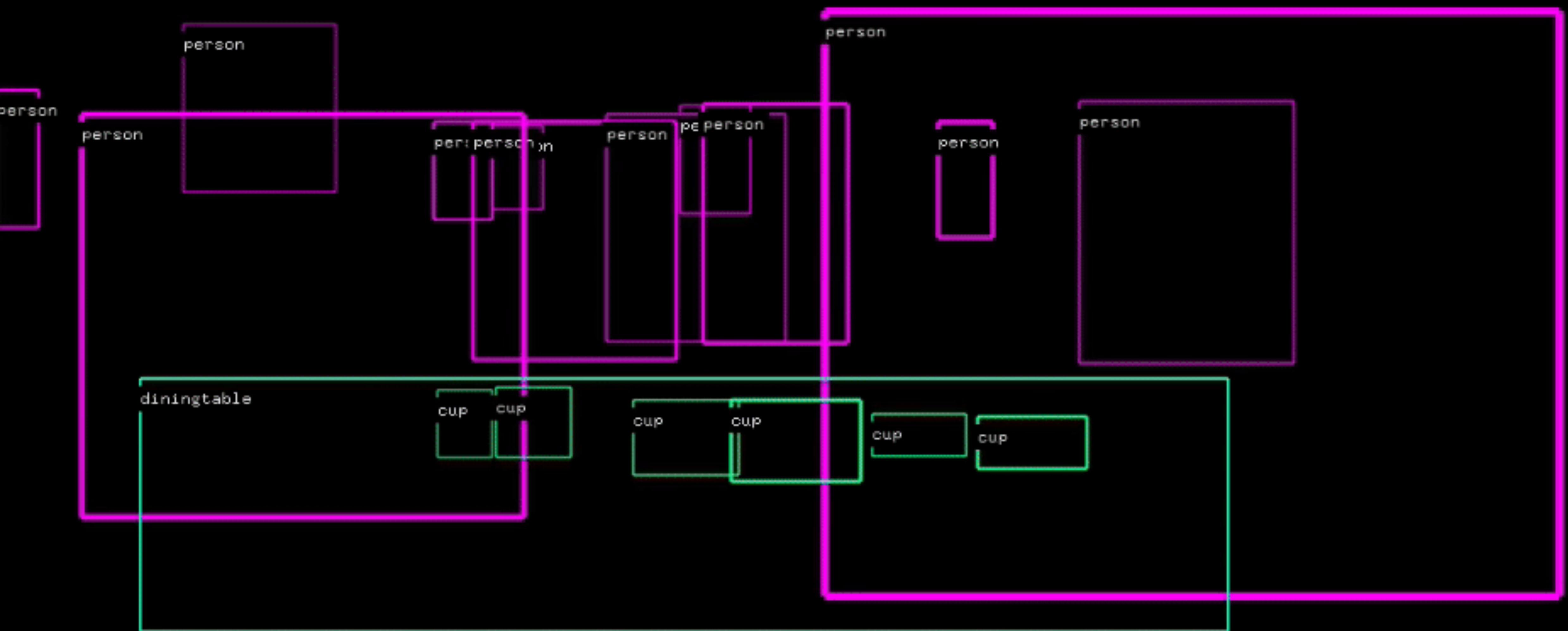
Non-interactive works

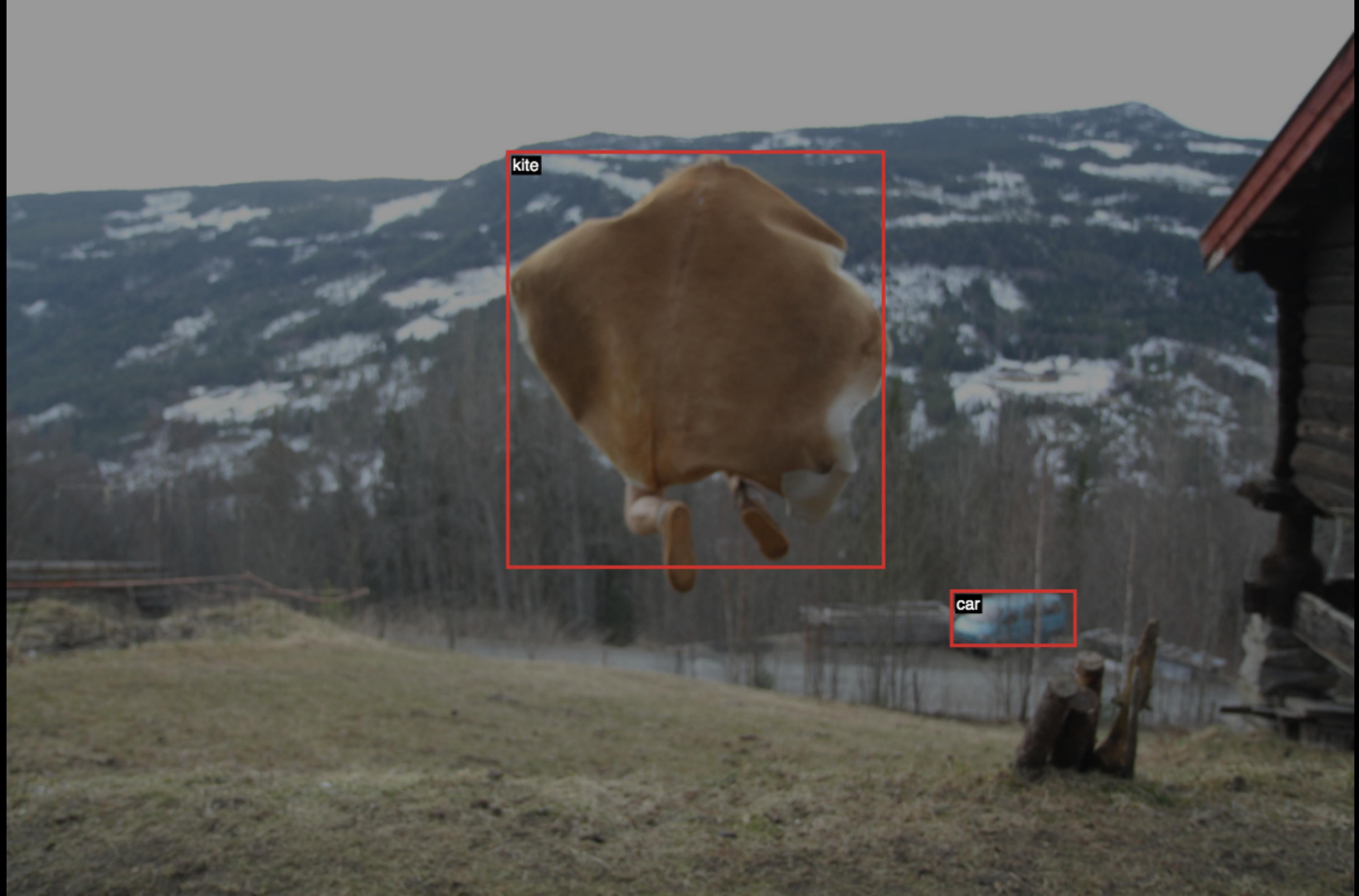


3%
Cavities Ris







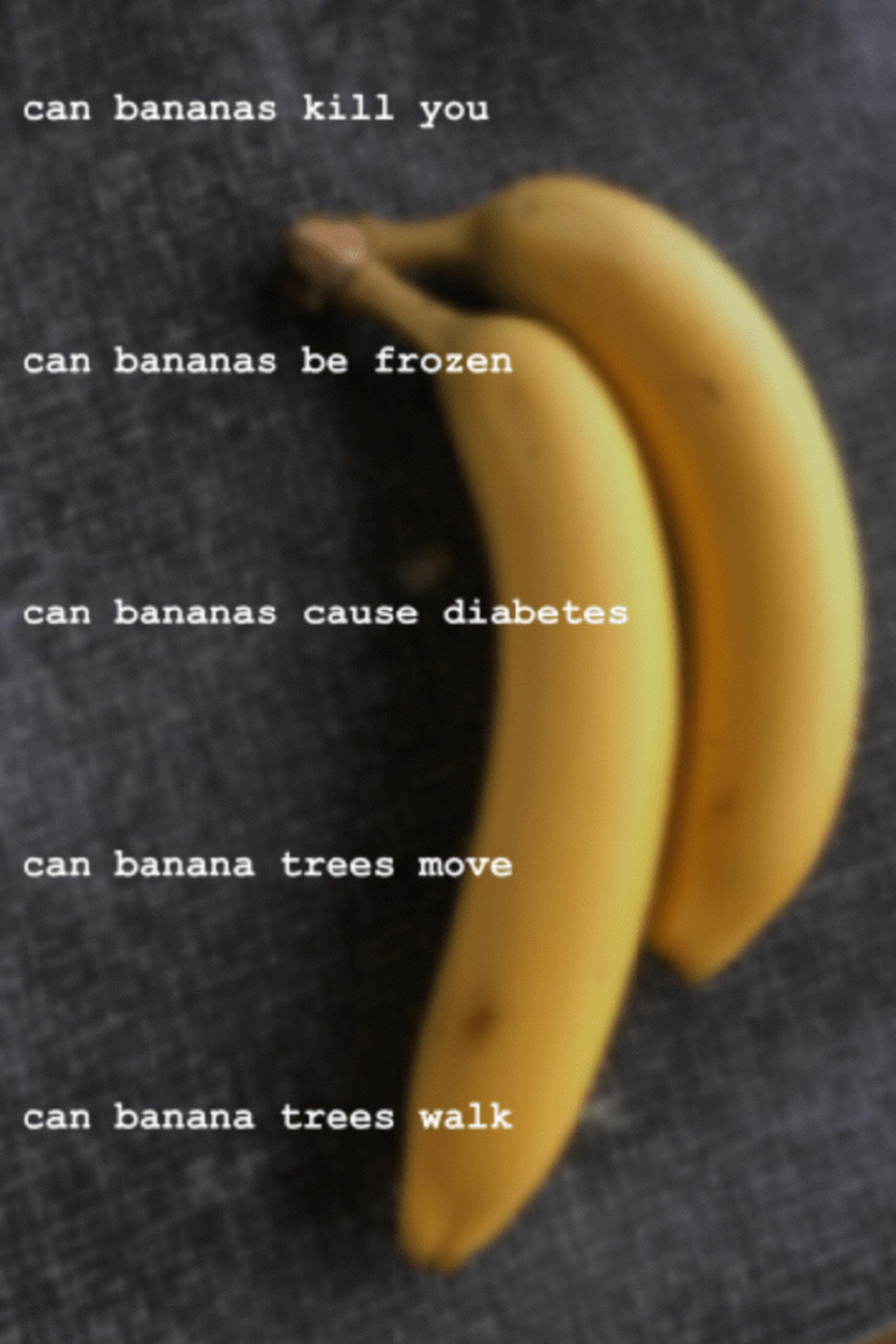


toilet



Poems about things
is a project that
generates poetry
from everyday
objects around us



A close-up photograph of two ripe bananas against a dark background. The bananas are curved and have a bright yellow color with some green at the stems. They are positioned diagonally across the frame.

can bananas kill you

can bananas be frozen

can bananas cause diabetes

can banana trees move

can banana trees walk



is my fur coat real

is my fur coat worth anything

is my fur coat mink

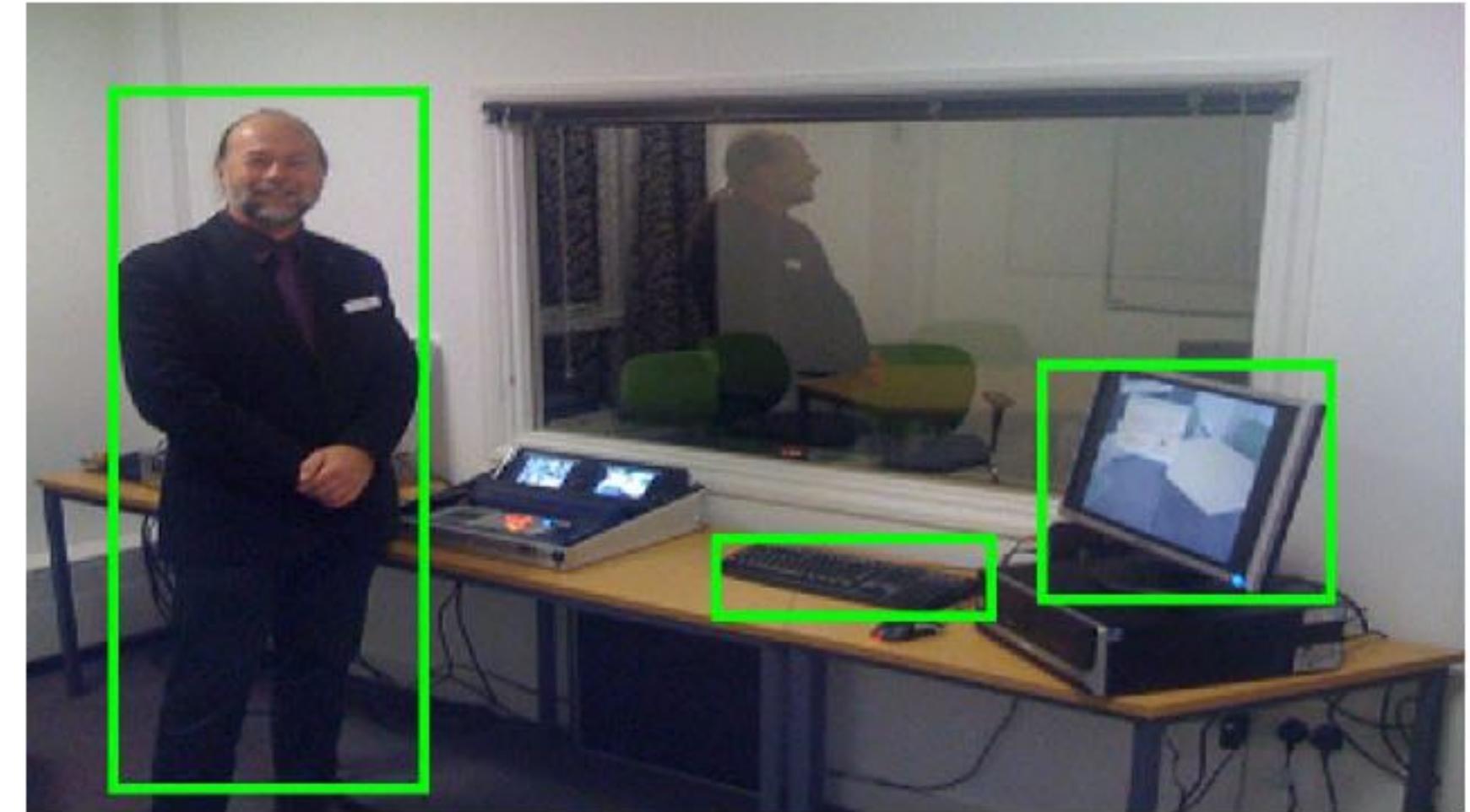
is my coat fur

why is my fur coat shedding

The story of the keyboard, the tvmonitor and the person

In a land far far away once lived a keyboard, a tvmonitor and a person. The story began when a sick man went to his friend in another country to ask for a pill. A fortune-teller gave the sick man a heart transplant, but the man was skeptical of the choice and turned down the advice. A more rational friend arrived and gave the man a pharmaceutical pill called "the tvmonitor". The man took it with him, who has since been cured and has gone on to become a successful TV personality.

Input image



Yolo3 classes: keyboard person tvmonitor

The objects detected by the algorithm are used to create the title and beginning of the story. The rest of the story is created by XLNet.

Built using Yolo3, GPT-2, RunwayML and images from cocodataset.org

The story of the toilet

In a land far far away once lived a toilet. One day, a servant came to help clean it. Before he could start, the whole thing sprang up into a dragon! He returned home at once. A year later, he was summoned back to the same place, where he found it was still a toilet but more powerful. He found it that too much waste in the toilet caused an explosion, killing the whole thing.

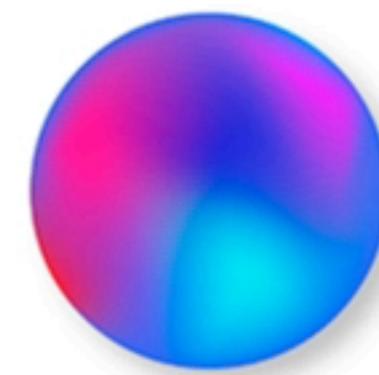
Input image



Yolo3 classes: toilet

The objects detected by the algorithm are used to create the title and beginning of the story. The rest of the story is created by XLNet.

Built using Yolo3, GPT-2, RunwayML and images from cocodataset.org



BOOKSBY.AI

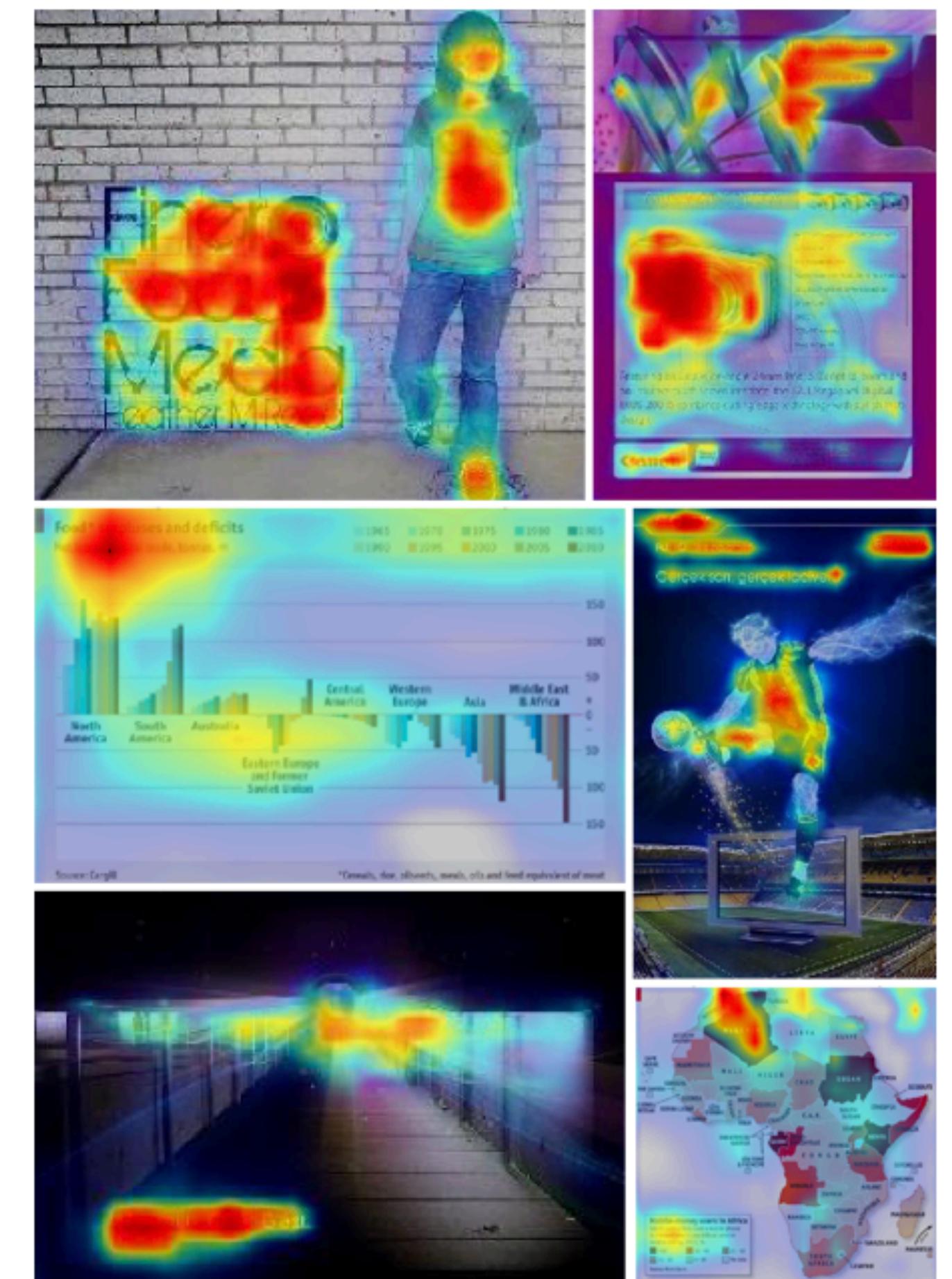
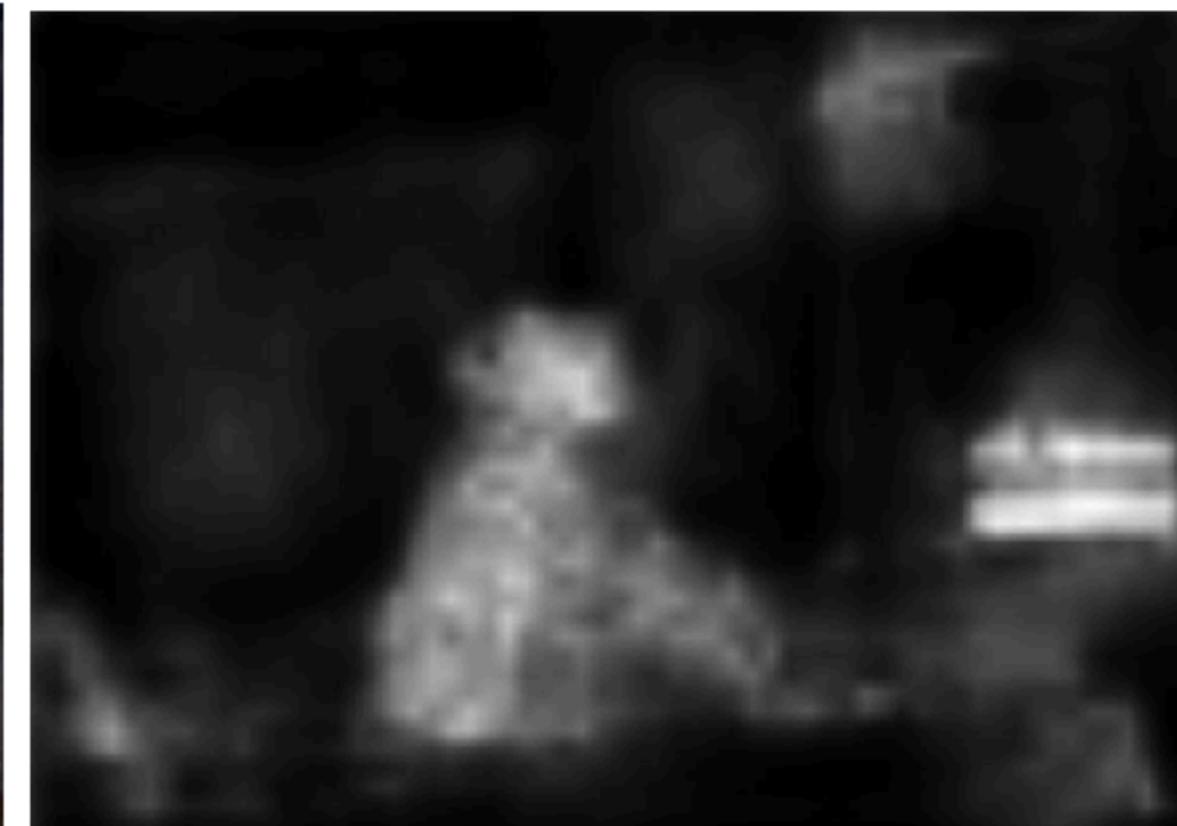
Work in progress
/ weird little experiments

Anne Marie Carlsen was born in Udby near Kolding on September 27, 1860 as the daughter of inventor Kresten Carlsen. She had a brilliant childhood, even being the top performer of her school choir.

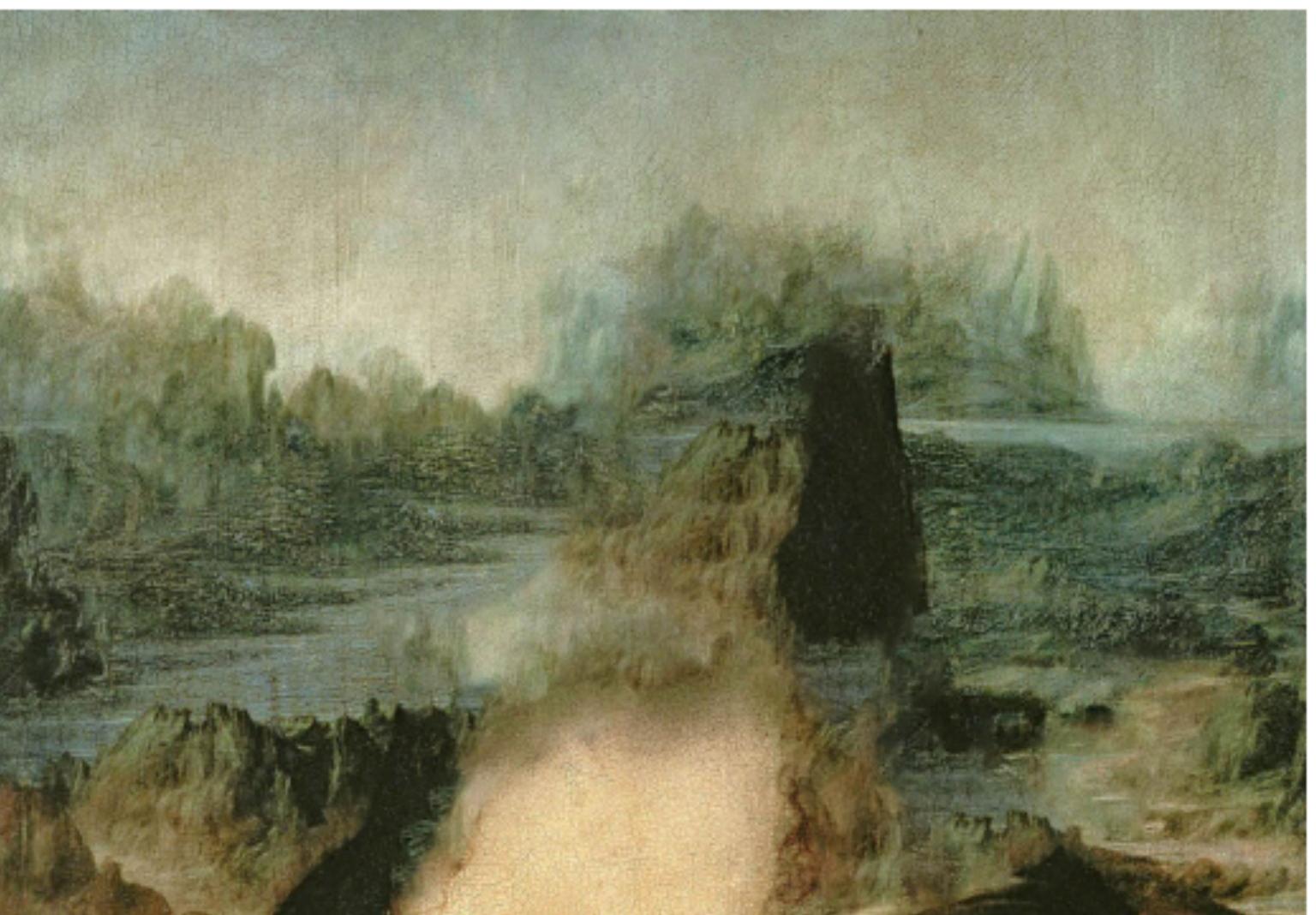
At just four years of age she married her friend Max Glitzinger. She had several children with him but didn't have a very happy relationship with her eldest son. When she was twenty-five years old she divorced her husband to be with her twenty-year-old son, whom she had known for eight years. She then married him again on the same day.



Erasing/Enhancing Essentials



Erasing

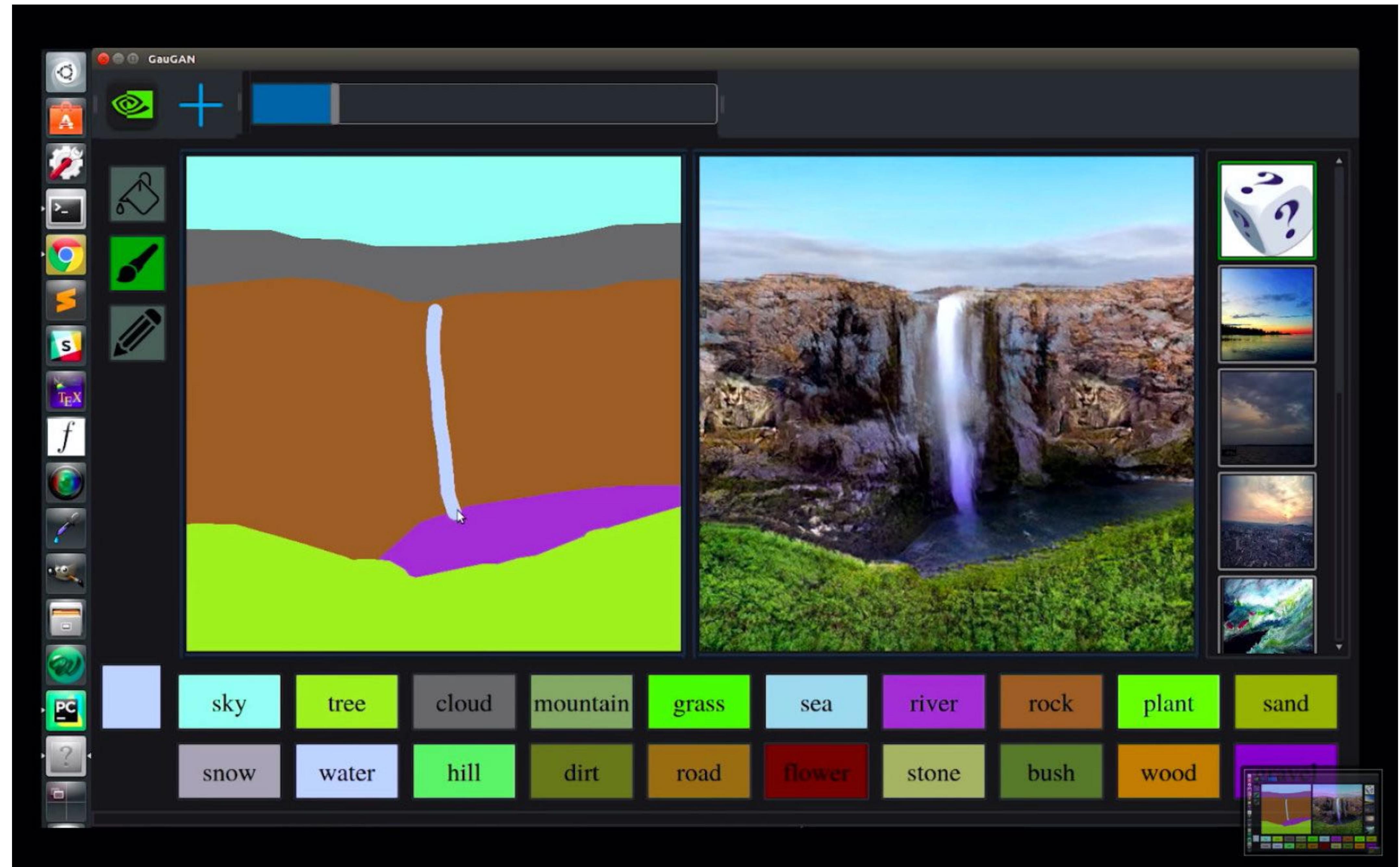


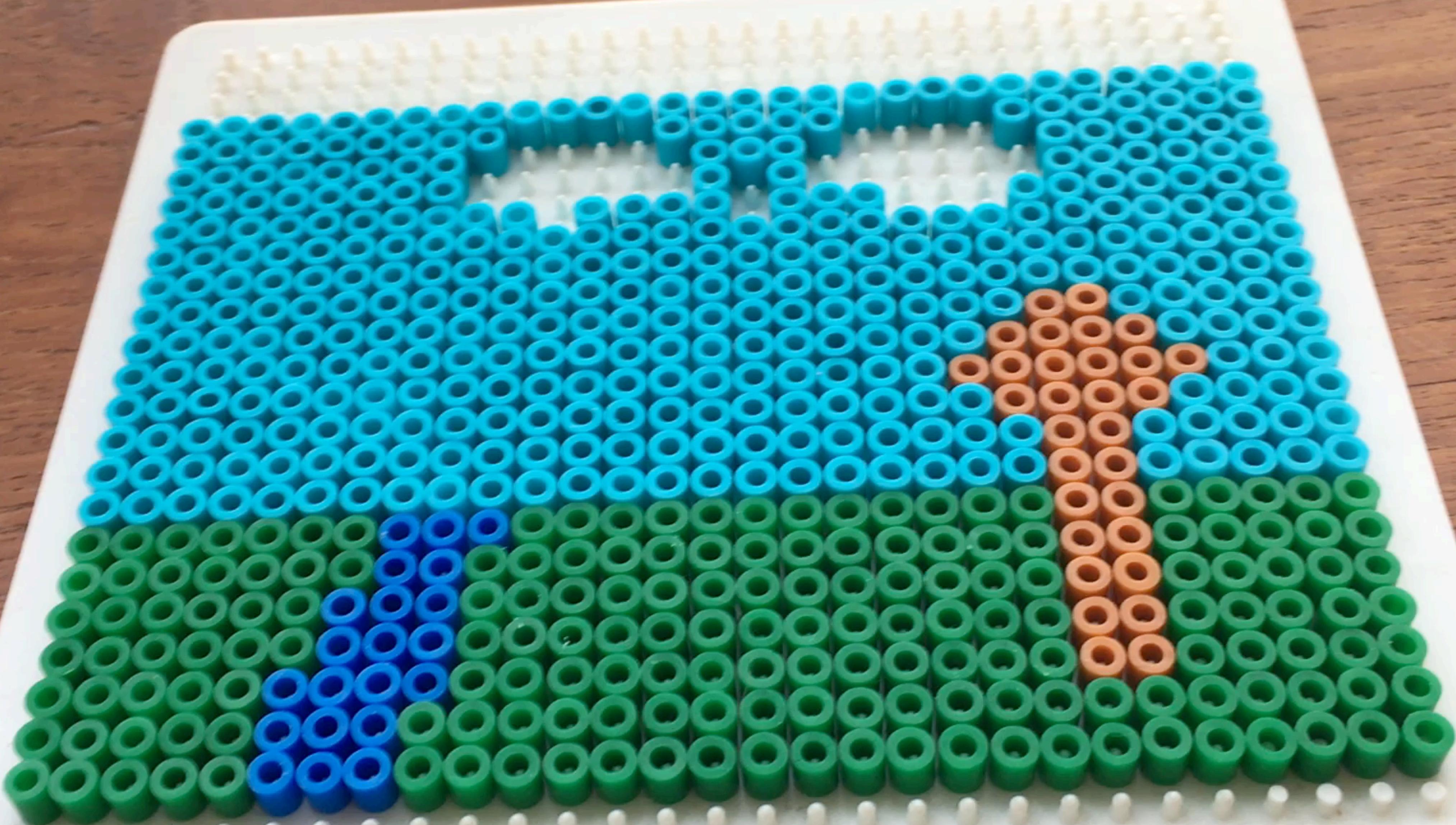
Enhancing



Perler beads to landscapes

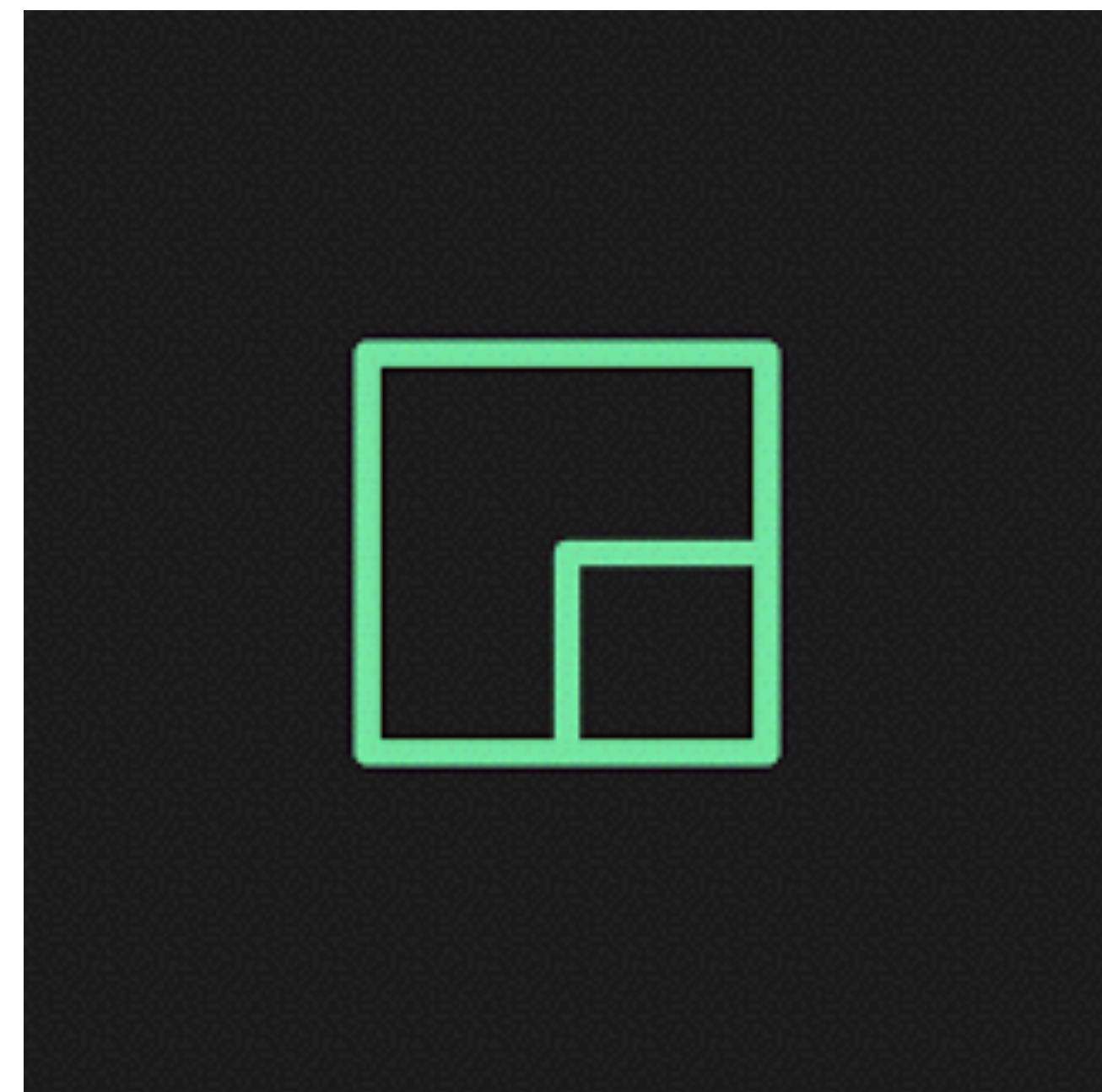








ml5js.org



runwayml.com

Questions?



10 minute break

When we come back, please open

andreasref.github.io/cita/

in Google Chrome

Now painting with layer: 1, press a key to switch

Press d to clear screen



Andreas Refsgaard

andreasrefsgaard.dk
twitter.com/andreasref
instagram.com/andreasref