

# AIND: Mimic Me!

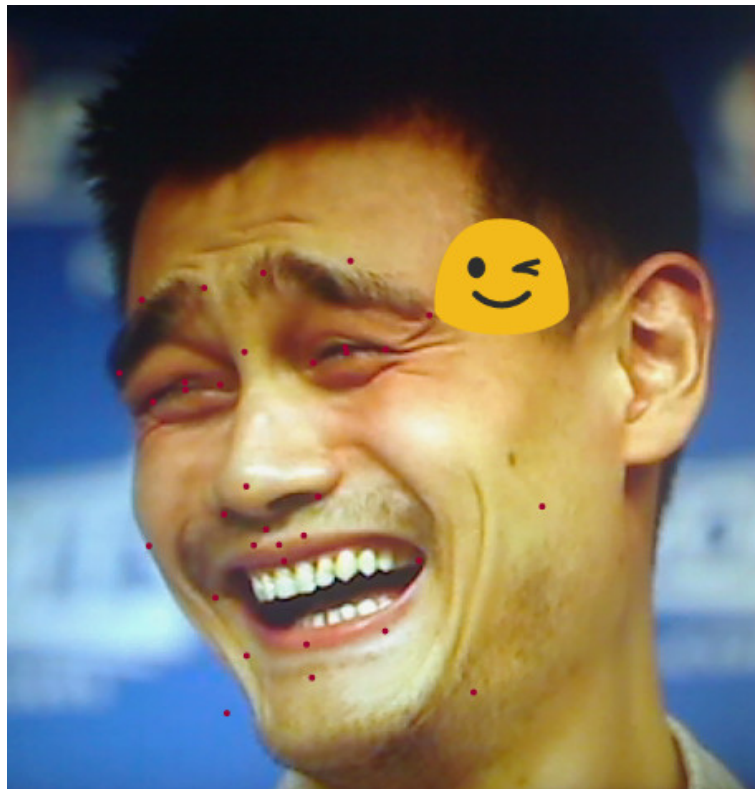
Markus Mayer

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## Abstract

This project implements a simple face tracking and emotion detection demo using the Affectiva Emotion AI SDK Affectiva, 2017a. Each face is tagged with an appropriate emoji next to it and small game is implemented where the player needs to mimic a random emoji displayed by the computer.

Figure 1: Detected facial features and dominant emoji



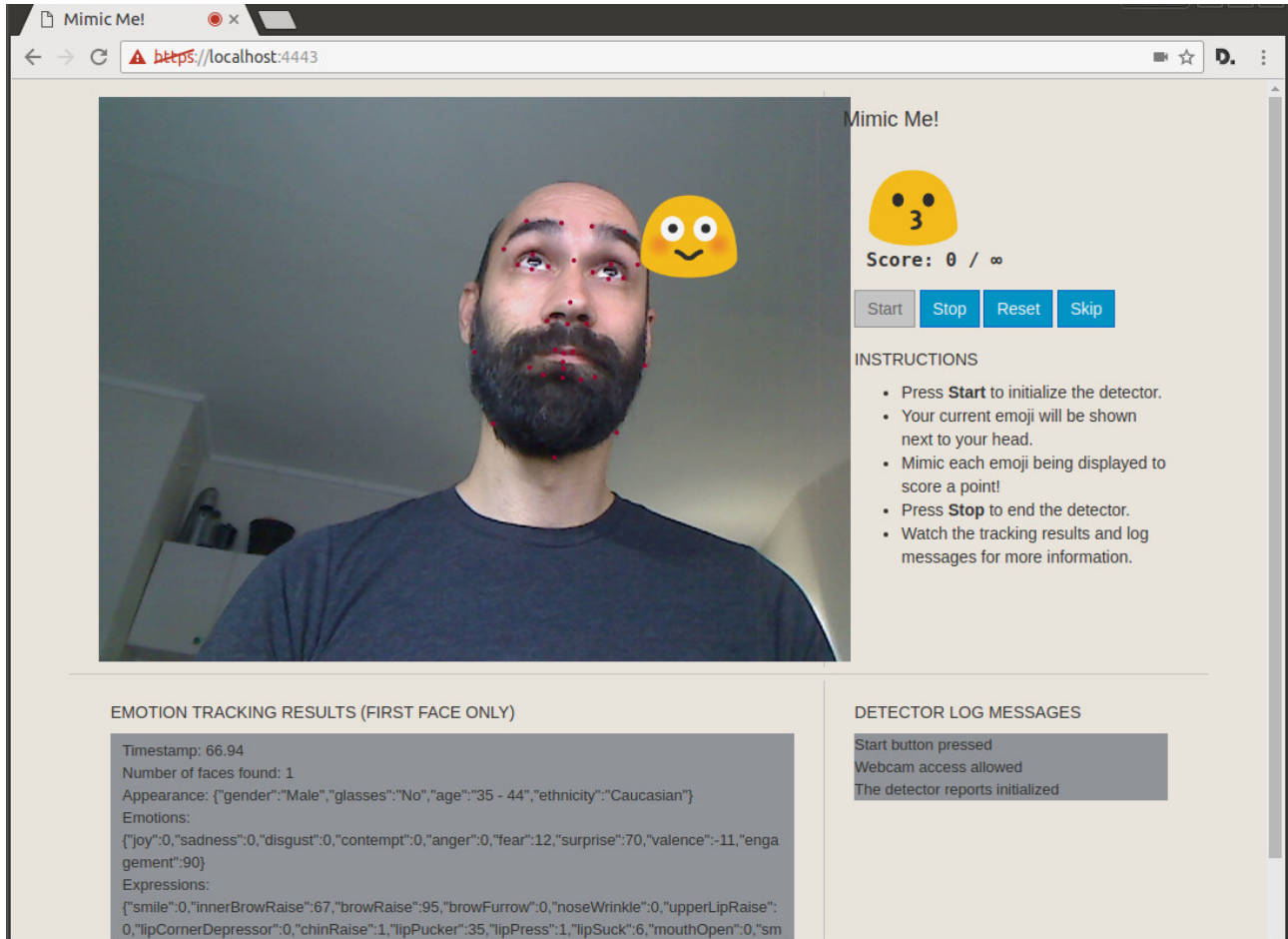
## 1 Multi-face feature detection

The original code was modified to display results for multiple detected faces. However, during testing only one detected face was returned by the API.

## 2 Rendering the feature points

For each detected face, a list coordinates for defined feature points is returned. The points are rendered as transparent overlays at the reported coordinates in the webcam image (fig. 1).

Figure 2: A screenshot of the demo



### 3 Showing the dominant Emoji

Similar to the feature points, a set of defined emotions and their according emoji is returned, where the dominant emoji is reported back as a unicode string. The location of feature point 10 is used to pin a rendered emoji to the left eyebrow of each detected face (fig. 1).

### 4 Mimic Me!

A small game dubbed "Mimic Me" was implemented where the players need to match their facial expression to a presented Emoji (fig. 2). Multiple players are supported (if multiple faces are returned from the API Affectiva, 2017b), however playing is cooperative. Since the API sometimes returned wrong results (probably due to my beard), I added a skip button to select a new Emoji without having to reset the game. No timeout is implemented and playing is basically forever.

## References

Affectiva (2017a). *Affectiva SDK: A Cross-Platform RealTime Multi-Face Expression Recognition Toolkit*. <https://www.affectiva.com/science-resource/affdex-sdk-a-cross-platform-realtime-multi-face-expression-recognition-toolkit/>. Accessed: 2017-08-20.

Affectiva (2017b). *Analyze the camera stream*. <https://knowledge.affectiva.com/v3.2/docs/analyze-the-camera-stream-3>. Accessed: 2017-08-20.