

Project: Mimic Me!

Rob Straker – August 24, 2017

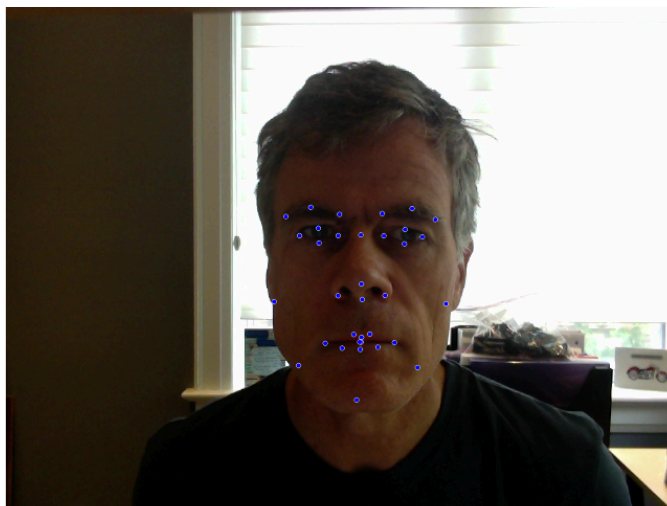
1. Display Feature Points

The first task was to display the feature points on top of the webcam image that are returned along with the metrics. To do this, I edited `mimic.js`, writing code for the `drawFeaturePoints()` function:

```
function drawFeaturePoints(canvas, img, face) {  
  ...  
}
```

Using the Mozilla Foundation website as a reference, I set the stroke and fill style, then looped over all `featurePoints` in the face to draw a feature point, where I drew circles using the `ctx.arc` command

Following is a screen shot of my output:



EMOTION TRACKING RESULTS

Timestamp: 426.24

Number of faces found: 1

Appearance: {"gender": "Male", "glasses": "No", "age": "55 - 64", "ethnicity": "Caucasian"}

Emotions: {"joy": 0, "sadness": 0, "disgust": 0, "contempt": 0, "anger": 0, "fear": 0, "surprise": 0, "valence": 0, "engagement": 0}

Expressions:

{"smile": 0, "innerBrowRaise": 0, "browRaise": 0, "browFurrow": 2, "noseWrinkle": 0, "upperLipRaise": 0, "lipCornerDepressor": 0, "chinRaise": 0, "lipPucker": 0, "lipPress": 2, "lipSuck": 1, "mouthOpen": 0, "smirk": 0, "eyeClosure": 0, "attention": 99, "lidTighten": 1, "jawDrop": 0, "dimpler": 0, "eyeWiden": 0, "cheekRaise": 9, "lipStretch": 0}

Emoji: 😊

Mimic Me!

?

Score: 0 / 0

INSTRUCTIONS

- Press **Start** to initialize the detector.
- Your current emoji will be shown next to your head.
- Mimic each emoji being displayed to score a point!
- Press **Stop** to end the detector.
- Watch the tracking results and log messages for more information.

DETECTOR LOG MSGS

Start button pressed

Webcam access allowed

The detector reports initialized

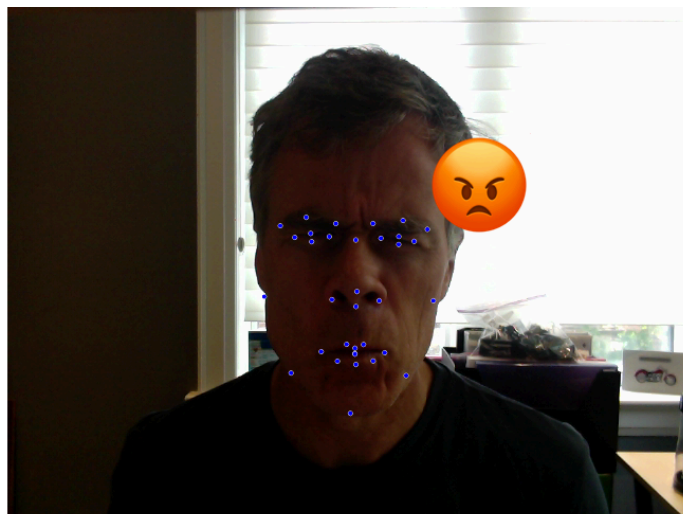

2. Show Dominant Emoji

The second task was to draw the *dominant emoji* next to the face, which the Affectiva API reports as the emoji that best represents the current emotional state of a face. I edited `mimic.js`, developing code for the `drawEmoji()` function:

```
function drawEmoji(canvas, img, face) {  
  ...  
}
```

Using the Mozilla Foundation website as a reference, I selected a font and used `ctx.fillText`, accessing the dominant emoji as `face.emojis.dominantEmoji`. To ensure the emoji was located close to the face, I used one of the feature points as an anchor point.

Following is a screen print of my output:

	<div>Mimic Me!</div> <div></div> <div>Score: 0 / 0</div> <div><input type="button" value="Start"/> <input type="button" value="Stop"/> <input type="button" value="Reset"/></div> <div>INSTRUCTIONS</div> <ul style="list-style-type: none">Press Start to initialize the detector.Your current emoji will be shown next to your head.Mimic each emoji being displayed to score a point!Press Stop to end the detector.Watch the tracking results and log messages for more information.
<div>EMOTION TRACKING RESULTS</div> <p>Timestamp: 50.40 Number of faces found: 1 Appearance: {"gender":"Male","glasses":"No","age":"45 - 54","ethnicity":"Unknown"} Emotions: {"joy":0,"sadness":19,"disgust":1,"contempt":1,"anger":96,"fear":0,"surprise":0,"valence":-46,"engagement":93} Expressions: { "smile":0, "innerBrowRaise":0, "browRaise":0, "browFurrow":100, "noseWrinkle":5, "upperLipRaise":0, "lipCornerDepressor":26, "chinRaise":0, "lipPucker":0, "lipPress":5, "lipSuck":1, "mouthOpen":35, "smirk":0, "eyeClosure":31, "attention":97, "lidTighten":89, "jawDrop":20, "dimpler":0, "eyeWiden":0, "cheekRaise":0, "lipStretch":0 } Emoji: 😡</p>	<div>DETECTOR LOG MSGS</div> <p>Start button pressed Webcam access allowed The detector reports initialized</p>

3. Implement Mimic Me!

The final task was to implement the game mechanics. I edited `mimic.js`, creating several additional functions, but did not modify the HTML or CSS files to change the look and feel of the game. New functions included:

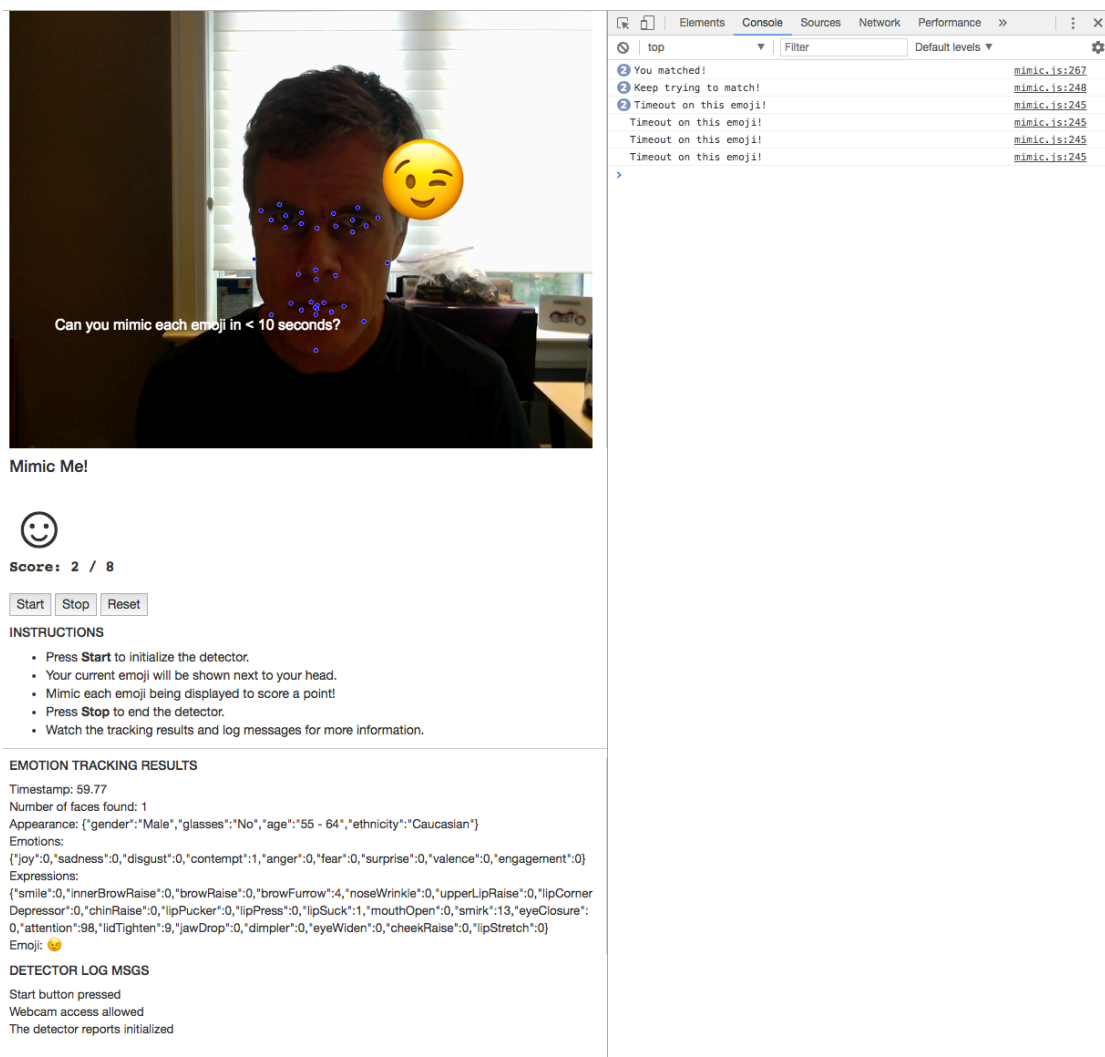
initGame – initializes the game variables.

selectEmoji – select emoji from list of 13 recognized by Affectiva's SDK.

playGame – determine whether there is a match to the target emoji.

In this game, the computer displays a random emoji, and the human player attempts to mimic that emoji as best as they can. As soon as they are able to mimic the face (or after a timeout of 10 seconds), the game moves on to the next random emoji. The game stops after 10 emojis are shown.

The score is based on the number of emojis the player is able to mimic within the timeout for each. Some feedback messages are displayed whenever the player is able to mimic an emoji successfully. Following is a screen shot of my output:



The screenshot shows the 'Mimic Me!' game interface and the browser's developer console. The game interface includes a video feed of a person's face with facial tracking points, a target emoji (😏), and a text prompt: 'Can you mimic each emoji in < 10 seconds?'. Below the video, the game title 'Mimic Me!' is displayed, followed by a smiley face icon and a score of '2 / 8'. There are 'Start', 'Stop', and 'Reset' buttons. The 'INSTRUCTIONS' section lists: 'Press Start to initialize the detector.', 'Your current emoji will be shown next to your head.', 'Mimic each emoji being displayed to score a point!', 'Press Stop to end the detector.', and 'Watch the tracking results and log messages for more information.' The 'EMOTION TRACKING RESULTS' section shows: 'Timestamp: 59.77', 'Number of faces found: 1', 'Appearance: {\"gender\": \"Male\", \"glasses\": \"No\", \"age\": \"55 - 64\", \"ethnicity\": \"Caucasian\"}', 'Emotions: {\"joy\": 0, \"sadness\": 0, \"disgust\": 0, \"contempt\": 1, \"anger\": 0, \"fear\": 0, \"surprise\": 0, \"valence\": 0, \"engagement\": 0}', 'Expressions: {\"smile\": 0, \"innerBrowRaise\": 0, \"browRaise\": 0, \"browFurrow\": 4, \"noseWrinkle\": 0, \"upperLipRaise\": 0, \"lipCornerDepressor\": 0, \"chinRaise\": 0, \"lipPucker\": 0, \"lipPress\": 0, \"lipSuck\": 1, \"mouthOpen\": 0, \"smirk\": 13, \"eyeClosure\": 0, \"attention\": 98, \"lidTighten\": 9, \"jawDrop\": 0, \"dimpler\": 0, \"eyeWiden\": 0, \"cheekRaise\": 0, \"lipStretch\": 0}', and 'Emoji: 😏'. The 'DETECTOR LOG MSGS' section shows: 'Start button pressed', 'Webcam access allowed', and 'The detector reports initialized'. The browser console on the right shows the following log messages: 'You matched! mimic.js:267', 'Keep trying to match! mimic.js:248', 'Timeout on this emoji! mimic.js:245', 'Timeout on this emoji! mimic.js:245', 'Timeout on this emoji! mimic.js:245', and 'Timeout on this emoji! mimic.js:245'.