

Data Collector Instructions

Andrew Palmer

February 2021

This system requires boto3 to run in addition to other dependencies you should already have installed for the first version of the tongue detector. You can install the dependency by running the following command.

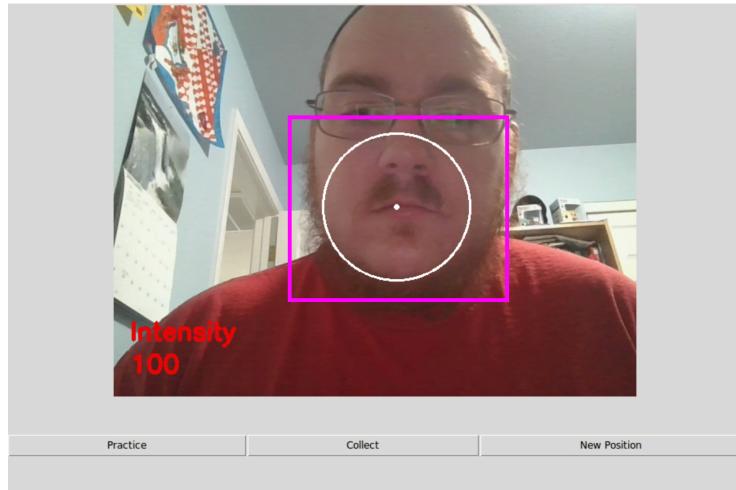
```
C:\Users\user> pip install boto3
```

1 Screen Parts

The program view consists of several parts. The feed from the webcam should be present at all times. If it is not, check that the webcam is working properly. If it still is not working, I can attempt a fix.

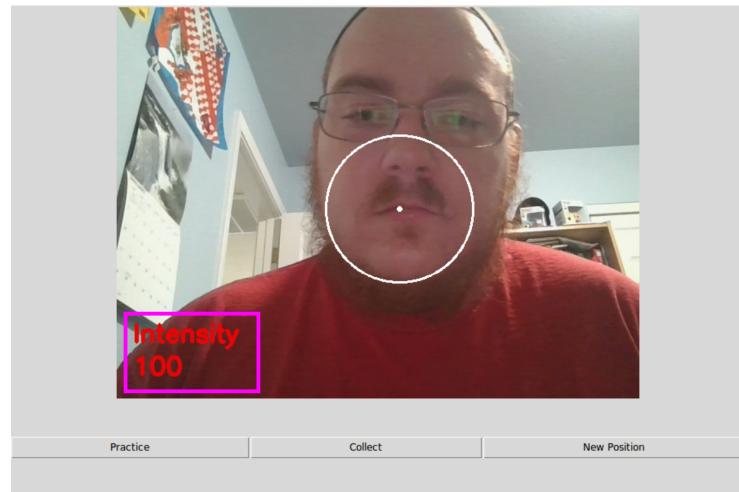
In addition to the feed you will notice additional elements of the screen. Each one will be identified in magenta as I discuss them.

1.1 The center circle placement



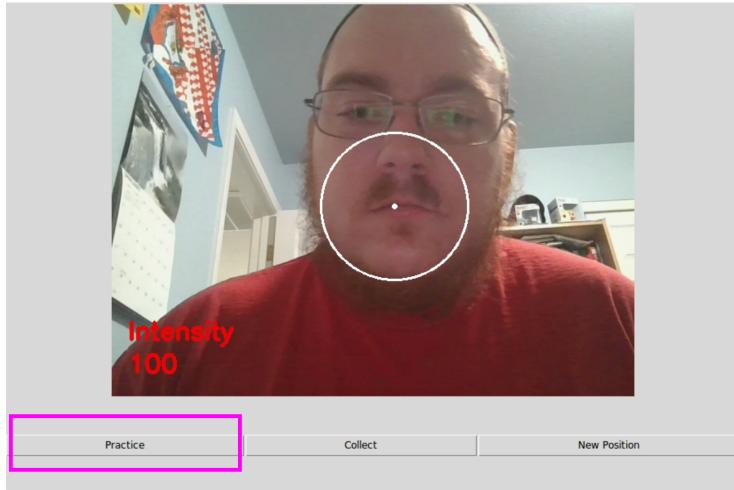
This is approximately how you should position the camera and your mouth. The center dot should be in the exact middle of your mouth, while the edge goes just below your chin. Poking your tongue against the furthest left or right should result in a cheek bump at the edge of the circle. **Try not to move your head while collecting data.**

1.2 The intensity value



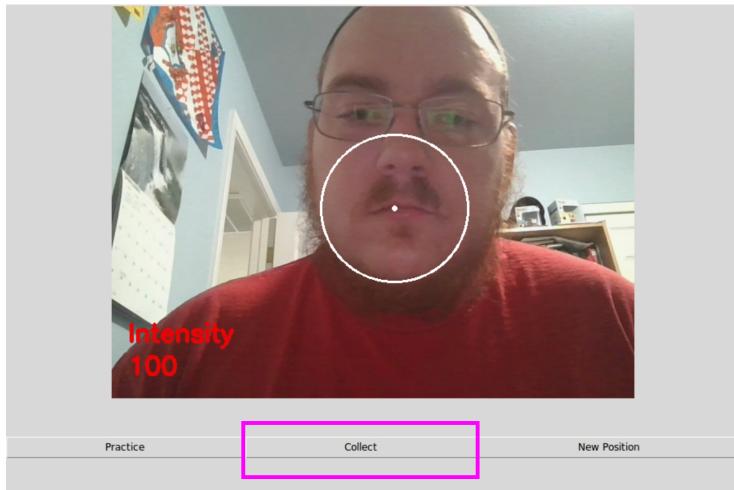
The intensity value displayed will show you the current intensity you are to aim for while collecting data. Each time you start the collection/practice a new intensity is selected.

1.3 The practice button



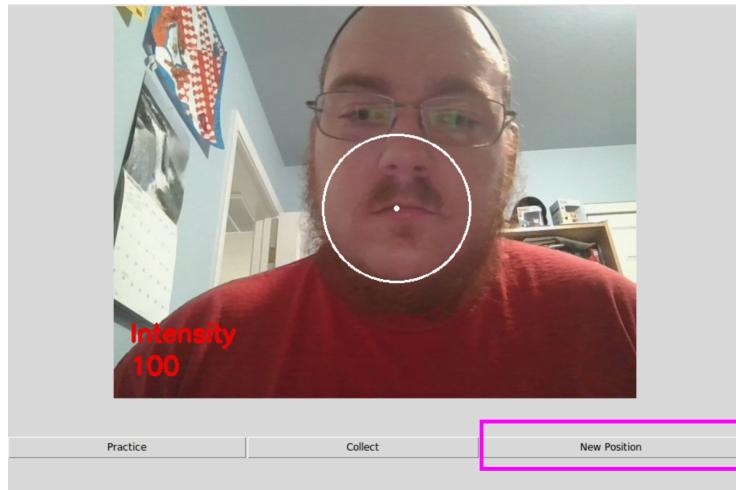
The practice button will initiate a collection cycle. Unlike the collect button, the practice button does not save any images through the cycle or submit any data to the server. So practice as much as you like.

1.4 The collect button



The collect button will initiate a collection cycle with data collection. Unlike the practice button, the collect button does save images through the cycle and submits the collected data to the server at the end of the cycle. So only collect data once you are prepared.

1.5 The new position button



In order to collect a variety of face angles, there is a new position button. Each time you press the button the position of the center circle will be randomly generated. This new position is persistent so long as you do not delete the settings file. It will default to the center of the screen if the settings file is deleted or you run the program for the first time.

1.6 The upload progress window



After collection is finished, the data upload will start. A window will pop up with a progress of the upload. The main program will be frozen during upload.

2 Collection Cycle

Each cycle consists of the following parts.

1. Cheek Circle - Large
2. Cheek Circle - Medium
3. Cheek Circle - Small
4. 3x(Tongue Out)
5. 3x(Pucker Lips)
6. 3x(Left Wink)
7. 3x(Right Wink)
8. 3x(Left Brow Raise)
9. 2 seconds No Triggers
10. 2 seconds Talking

Each part starts with the part label shown and a countdown.

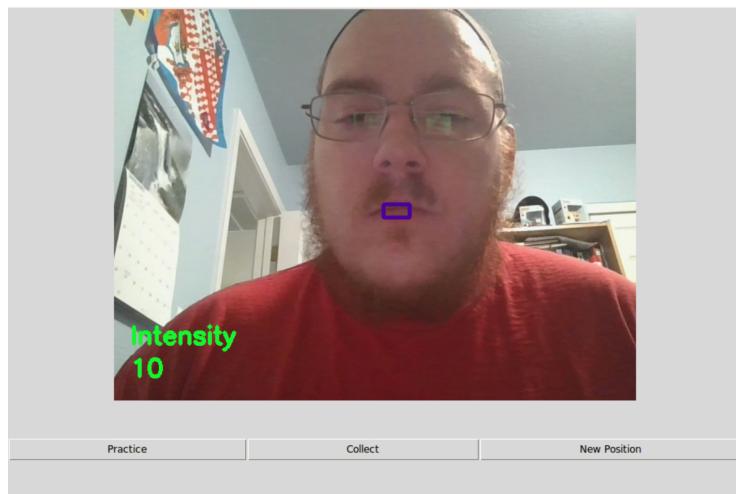


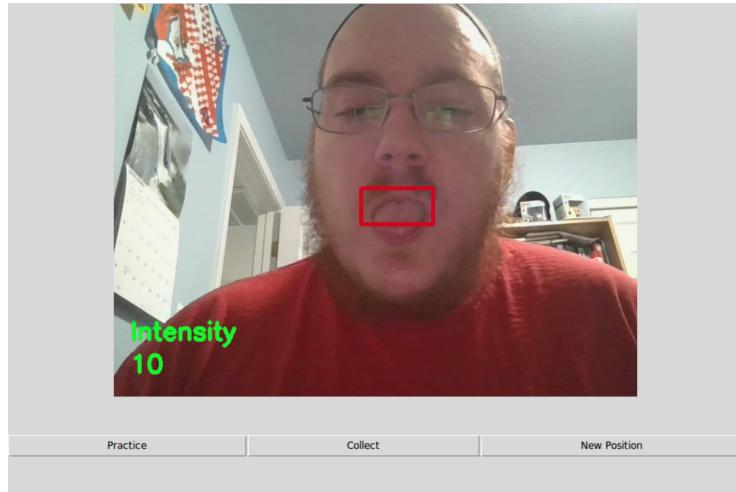
Once the countdown finishes, the collection begins. For all parts except the No Triggers and Talking, an indicator will show on the screen.

For the cheek circles, a target will revolve around the border of the circle. Try to put the point of your tongue at that target location. On the largest circle, you will likely not get the top and bottom parts of the circle as easily as the left and right sides.



For the non-cheek indicators, a box will grow and shrink from blue to red.





You want to try and get the apex of the action to occur at the large red rectangle.

You will know the cycle is done by either the upload progress window, or the appearance of the center circle.



3 Suggestions for Data Collection

There are a few things I would like to point out before you start going full throttle on the data collection.

First, each collection takes a little over 2 and a half minutes. Once it starts, none of the buttons will do anything. **Each cycle through of data collection produces around 360 images. So two collections will result in a quantity of near 720 (I will treat up to 780 collected images as 700 images).** I suggest you practice at least 4 times with just trying to get the movements down. Then, I would suggest you practice the movements and hitting the desired intensity for at least each intensity. How much you practice is up to you.

Second, the intensity shows for the entire sample collected. You should aim to max out the intensity for the cheek circles at that value. **It is your choice if you want to make the other movements maxed out at that value or go to full 100 intensity on non-cheek triggers, but pick a single paradigm for all data collections.** I will ask you for that paradigm before I begin annotating.

Third, because we want varied lighting conditions and intensities, I would expect you to collect at least 6 cycles. You also wanted to have additional circle locations to make it more robust to angle of your face. You can collect as many as you want, just be aware that every two is one order of data annotation.

Forth, once upload to the server begins, those files are on the server regardless if you close the program. Closing the program during upload will crash the program and require a restart of the data collector. Any files you don't want counted on the server I will remove, just let me know.

Fifth, you will have a local copy of the collected data on your machine. So if upload fails, you haven't lost the data and we can work out how to transfer it to the server or exchange it.

Sixth, as requested the program will position randomly on your screen with each start so your eyes are looking in different locations.

This will create a lot of data very quickly, so practice before you actually collect data.