

# Using OpenCV Eye Tracking to Make a Color Guessing Game

HENRY WILT

Ursinus College  
hewilt@ursinus.edu

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## Abstract

*The goal for this assignment was to use open-cv, a python library that allows you to track your eyes, for a project in color guessing based on the text that was shown to the screen [1]. This was shown through a window that captures the live feed of the camera that then is processed with open-cv and then the user moves their eyes over the correct box with the color that was used in the text that was shown.*

## I. ABOUT THE CODE

It is a pretty simple example game of guessing [2]. There is not that much work that is used since most of the processing is handled by open-cv and their code library. When you run the program, a window pops up with your camera and a threshold bar. Once the program detects the user's eyes, it will start the guessing game by choosing a random color from the dictionary and put it on the screen then the user will have to move their eye to the correct box with the color that the word says instead of the color that the word is shown in. When the user guesses correctly the window will close and in the terminal it will print out the you have won and the name of the color that was correct.

## II. CONSIDERATIONS

I had to consider how the user would interact with the program. If the user could not use the keyboard or if the user was deaf. In the program, there is no need for sound as you are only using your eyes to navigate through the options in the game. The keyboard is neither used in the program so that does not affect it either. The user only needs the use of their head/eyes to use the program. It will pick up on the user's movements which will convert

it into action on the screen which allows the program to function.

## III. CONCLUSIONS

In conclusion, the program uses the python library of open-cv to allow the user's eye movement to play a color guessing game. This was an interesting project to work on because I've never used eye tracking software before and never knew how simple it actually was. I learned a lot about how the open-cv project is used in real technologies like, swapping faces or using augmented reality to paint. In the end, it was a great project to work on and I had fun doing it.

## REFERENCES

- [1] Bill Mongan. *CS474: Human Computer Interaction: Eye Track Assignment Page*. URL: <https://www.billmongan.com/Ursinus-CS474 - Spring2022 / Assignments / Programming / EyeTracking>. (accessed: 02.25.2022).
- [2] Henry Wilt. *Eye Track Assignment Code*. URL: [https://github.com/hwilt/CS474/tree/main/Eye\\_Tracking](https://github.com/hwilt/CS474/tree/main/Eye_Tracking). (accessed: 02.25.2022).