

Discussion 3.1 Exploring OpenCV

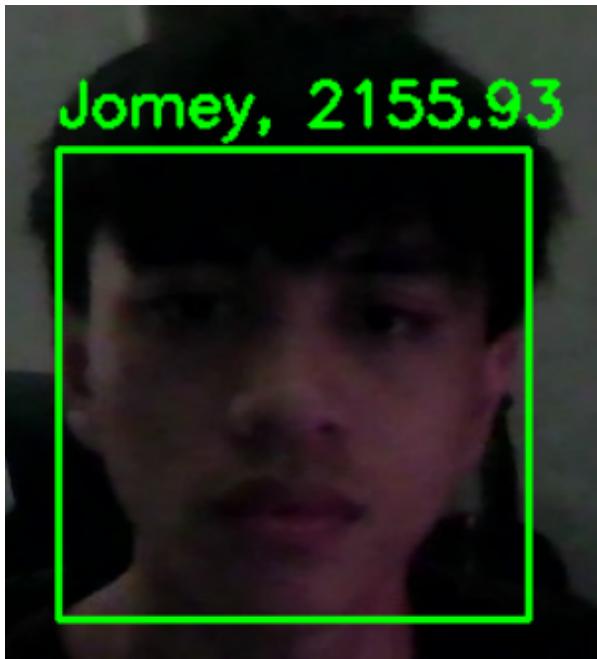
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Section: CPE 313 - CPE32S3 **Date:** 02/21/2025

Supplementary Activity

Eigen:

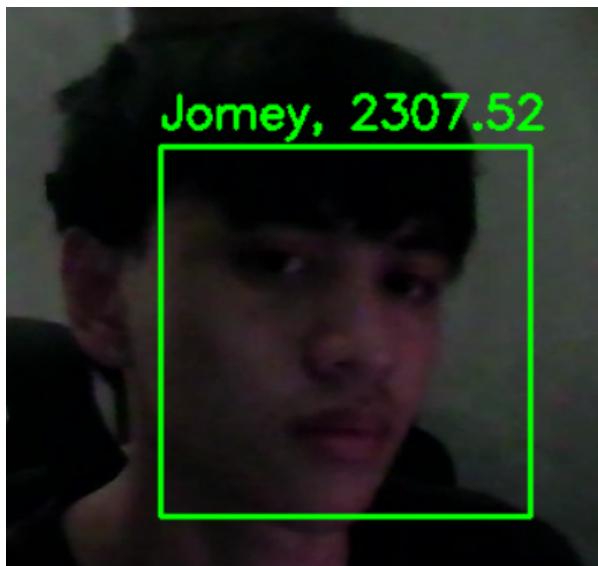
Test 1:



Observations:

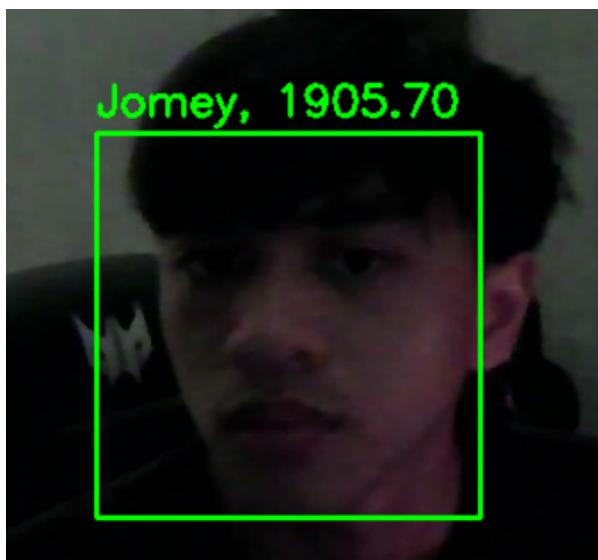
I tested the Eigen model first in a darker light to see if the model works fine and as we can see in the results, it works pretty fine.

Test 2:



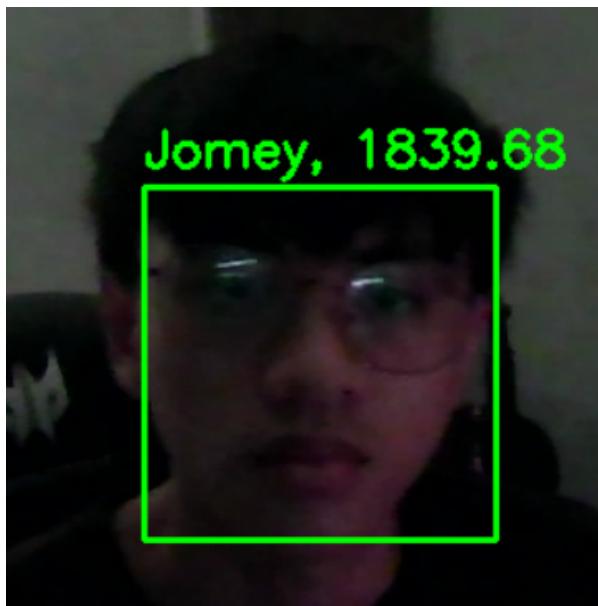
Another darker light but with a bit side view, the model still captures me.

Test 3:



Same here with test 2.

Test 4:



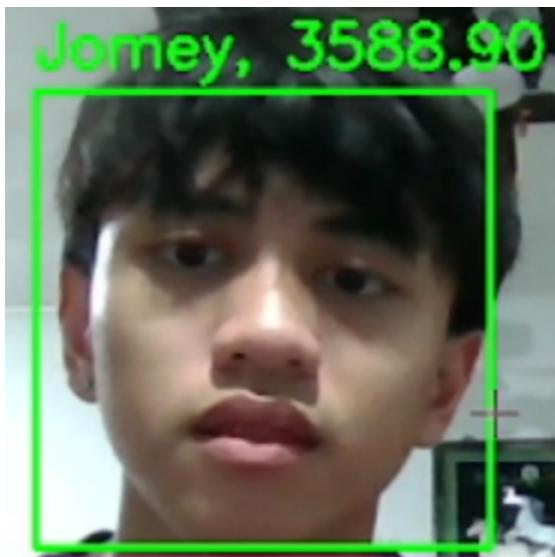
I then now tried to do it with glasses to see if the model can still notice me, turns out it still works pretty fine.

Test 5:



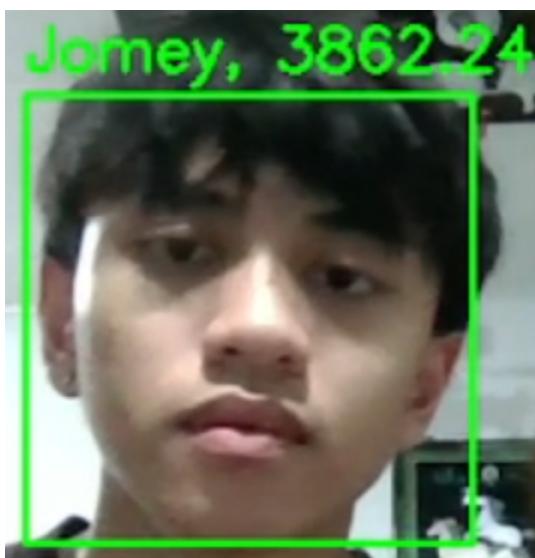
I tried to do glasses with side view, but I noticed that the model gets a hard time noticing me.

Test 6:

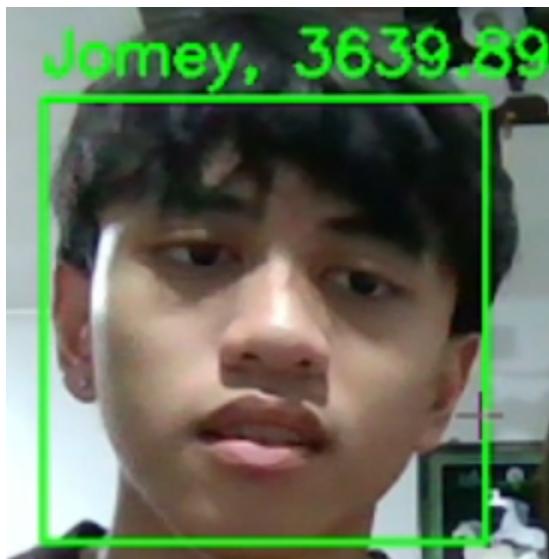


Next I tried to do it now with pretty good lighting. If we compare it to the previous results with darker light, we can notice that the confidence level also went higher.

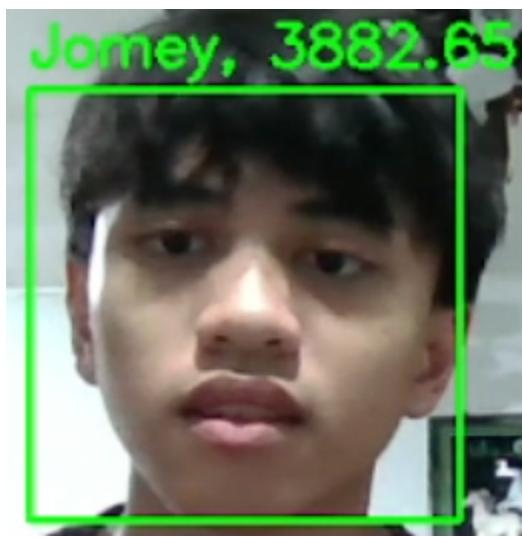
Test 7:



Test 8:



Test 9:



Test 10:



The model notices me pretty well with good lighting.

Test 11:



Next I tested the model with my mom, and it turns out the model works pretty fine since the model is only supposed to identify or recognize if it's me or not.

Test 12:



Test 13:



In this result, the confidence level went down below 5000 which is an accuracy error and we can notice that it showed my name to my mothers face.

Test 14:



Test 15:



Same results which is nice.

Test 16:



Next I tried to do it with a famous artist's picture which is kendrick lamar. The results was good since it shows that the model is not recognizing the picture.

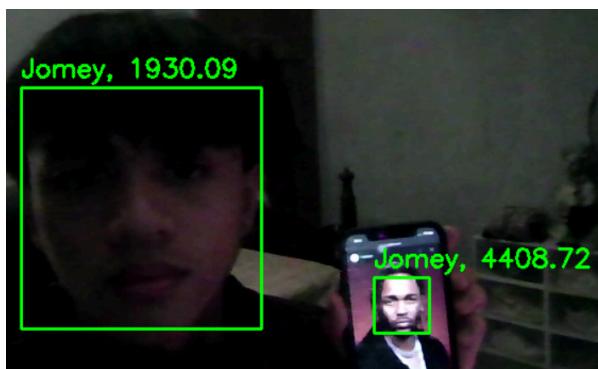
Test 17:



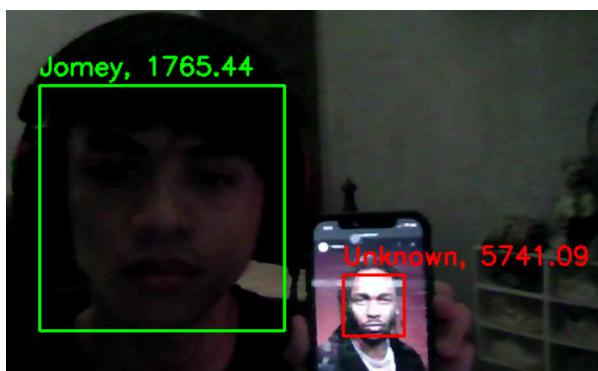
Test 18:



Test 19:



Test 20:



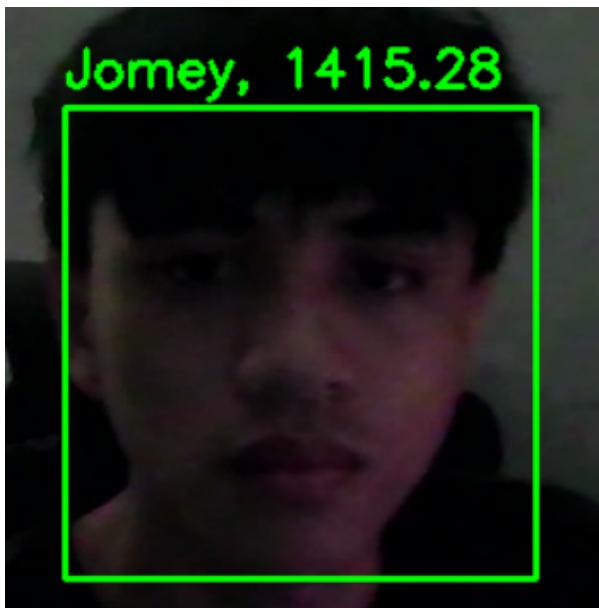
Next I tried to show the picture along with me, The first result gave as an output that the model recognizes not just me but also kendrick lamar which is an error again.

In this final result we can see that the model distinguished our faces well.

Evaluation on Eigen model: The model really works pretty fine, It recognizes me both in brighter and darker lighting which is really good and it also shows an unknown person pretty well. The model only gets minimal error which is very nice.

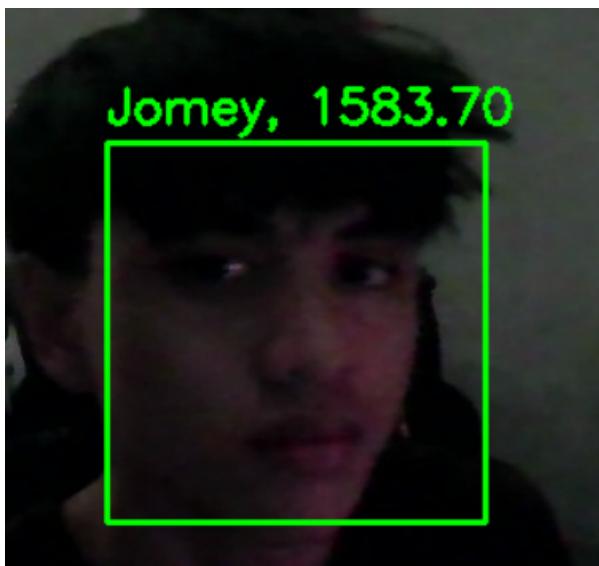
FisherFaceRecognizer:

Test 1:



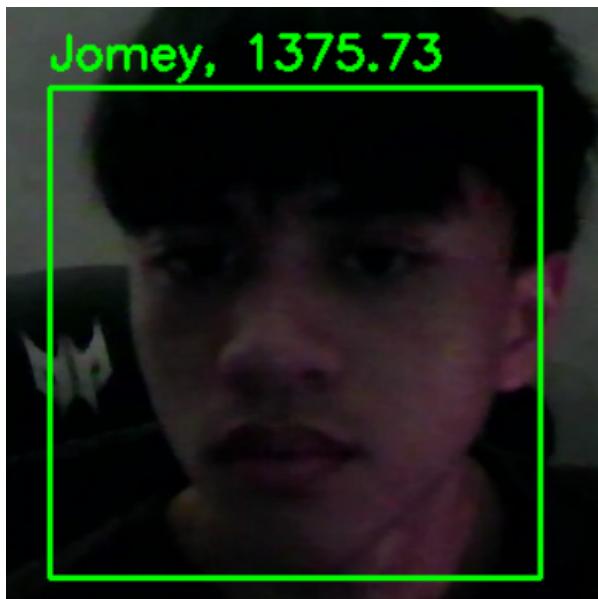
Same test again with darker lighting, the model still works pretty fine.

Test 2:



Works too with sideview.

Test 3:



Test 4:



Tried it again with glasses and the model still recognizes me.

Test 5:



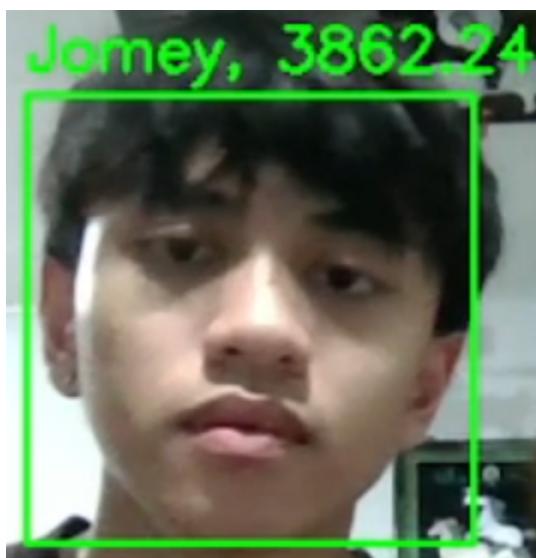
In this result the model was not recognizing my face again, I think this is because my other eye is not that visible in the picture.

Test 6:



Next, I tried to test the model again with pretty good lighting, turns out the model also works pretty fine and recognizes me well.

Test 7:



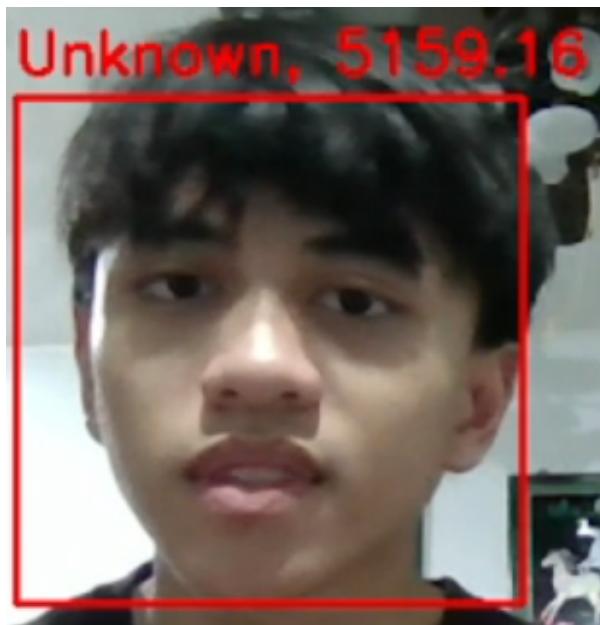
Test 8:



Test 9:



Test 10:



In this result, the model rarely gets this type of error but still it works pretty well.

Test 11:



Next, I tested the model again with my mom. It still works pretty well since the model shows that it doesn't recognise my mom.

Test 12:



Test 13:



In this result, I got another error in which the confidence level for my mom went below 5000 again and recognized my mom as me again.

Test 14:



But still, the model still works pretty fine.

Test 15:



Test 16:

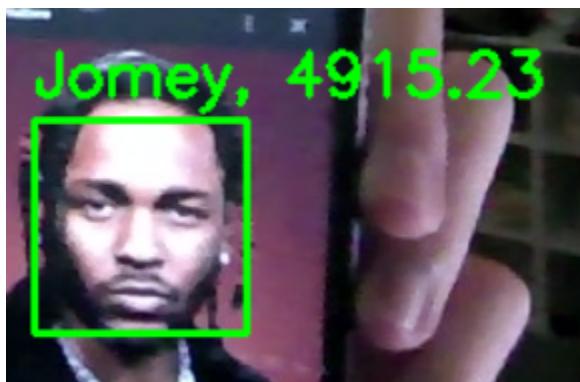


Tested it out again with kendrick lamar's picture, and turns out the model still works pretty fine since it does not recognize kendrick lamar.

Test 17:

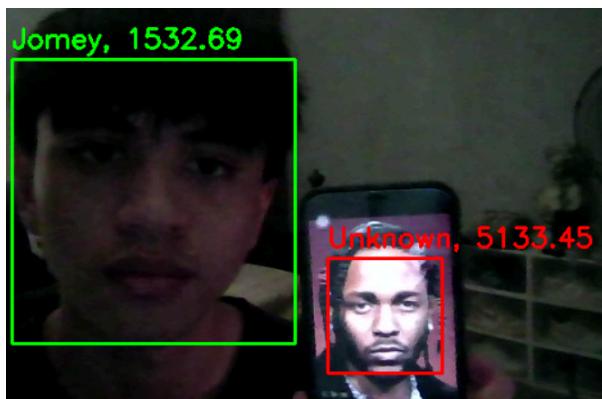


Test 18:



In this result the model had another error since it recognized kendrick lamar as me.

Test 19:



Next, I tried to test the model with darker light in me and kendrick lamar's picture. Turns out the model still recognizes me and not kendrick lamar which is really good.

Test 20:

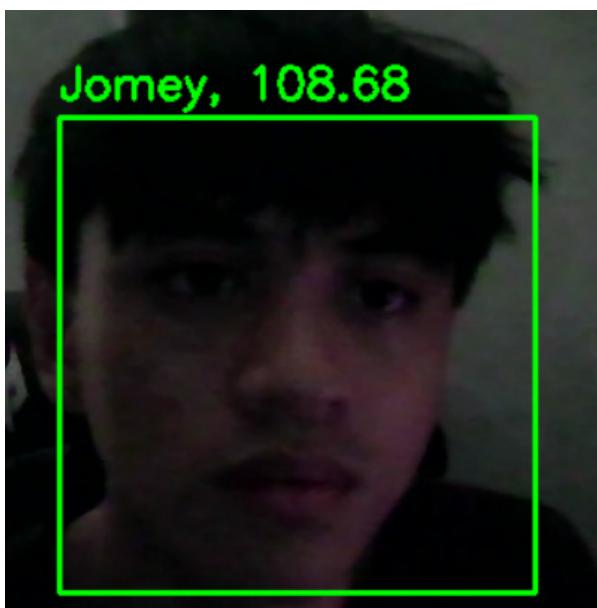


Same results with brighter light in me.

Evaluation on Fisher model: The model works pretty fine and it only gets minimal error which is very good for me. The model can recognize my face well both in darker and brighter lighting.

LBPHFaceRecognizer:

Test 1:



Next, tested the LBPH model with my face in darker light, and the model still works and recognizes me pretty fine.

Test 2:

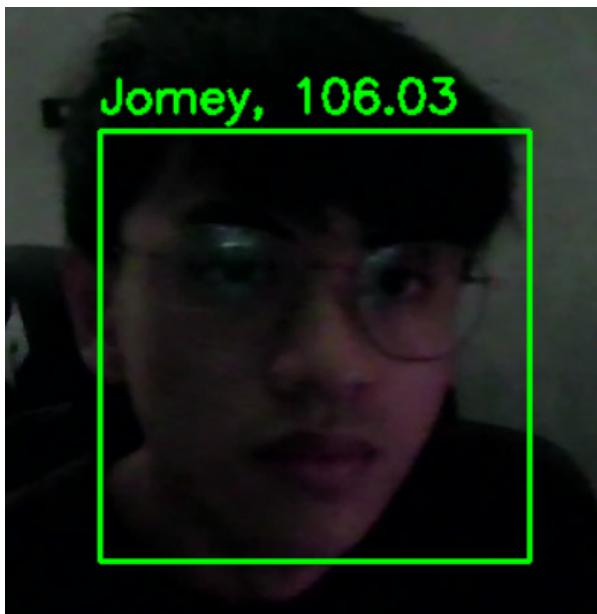


Tried to do it with side view, but the model does not capture my face well.

Test 3:



Test 4:



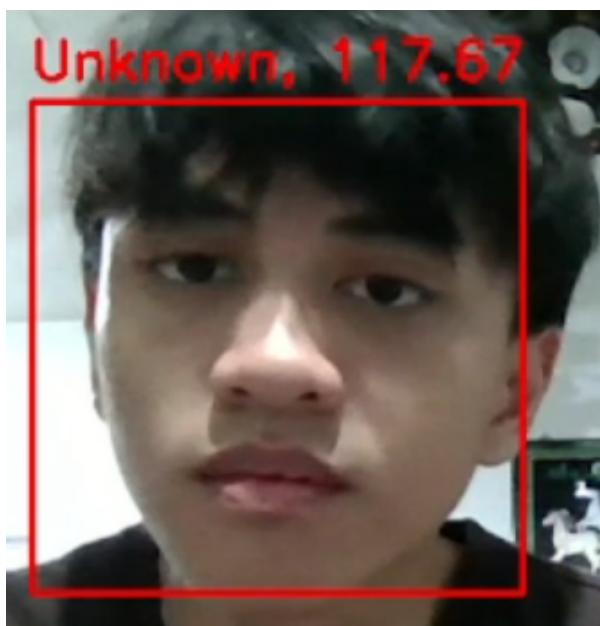
Tried to do it with darker light and with glasses, the model still recognizes me well.

Test 5:



I tried to do a side view with glasses, but the model really gets a hard time recognizing me with side views.

Test 6:



Next, I tried to do it with good lighting. The model is not capturing my face well which is an error but I notice that the model only captures my face well if I show my face closer in the screen and if I stay still.

Test 7:



Test 8:

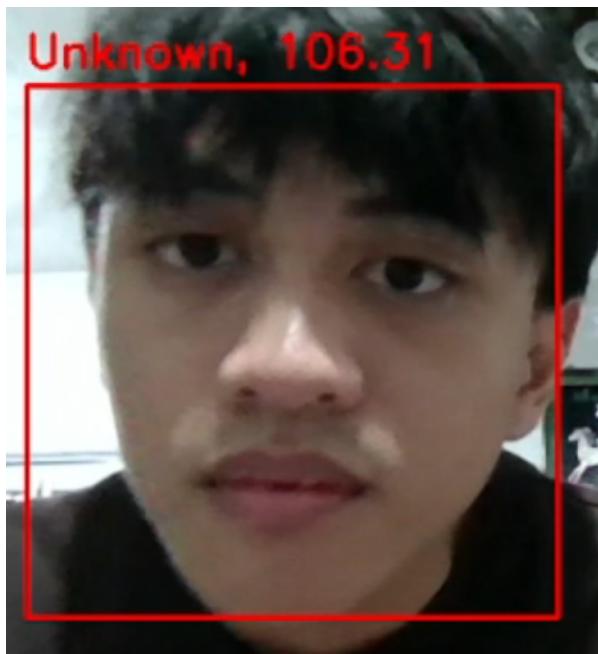


Here the model is working pretty fine now since I went closer to the camera and the model recognizes my face now.

Test 9:



Test 10:



Same error as test results 6 and 7.

Test 11:



Next, I tried to do it with my mom, and it works pretty fine since it does not recognise my mom.

Test 12:



Test 13:



Test 14:





Test 15:



Test 16:

Next, I tried to do it with kendrick lamar's picture again, It doesn't recognizes kendrick as me which is good.



Test 17:

Test 18:

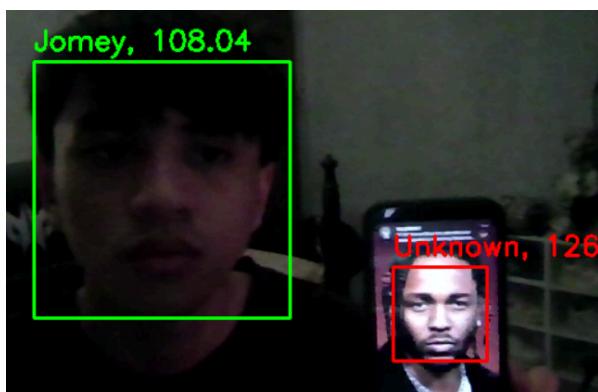


Test 19:



Next I tried to do it with kendrick lamar's picture, turns out it recognizes me and not kendrick lamar which is another good test result.

Test 20:



Tried to do it with darker lighting again and I noticed that the model is recognizing me with a bit darker light better compared to brighter lighting which is weird.

Evaluation on LBPH model: My model is recognizing me better in darker lights compared to brighter lights which is really weird.