

We have primary used python language for preprocessing and analysis data for plotting different graphs such as bar chart, confusion matrix etc.

**For Manual Annotation Misclassification analysis following code was used for face detection, head pose estimation, and pupil detection.**

#### **Face Detect:**

We have created our own face detector using YOLOV4.

<https://docs.ultralytics.com/models/yolov4/>

In our study face detector was used to obtain the face bounding box coordinate which was further used for head pose Estimation.

#### **Head pose Estimation:**

In this study head pose was measured in terms of Euler Angle (Yaw, Pitch, Roll) using Hopenet Algorithm. Details of Hopenet is given in following Link.

<https://github.com/natanielruiz/deep-head-pose>

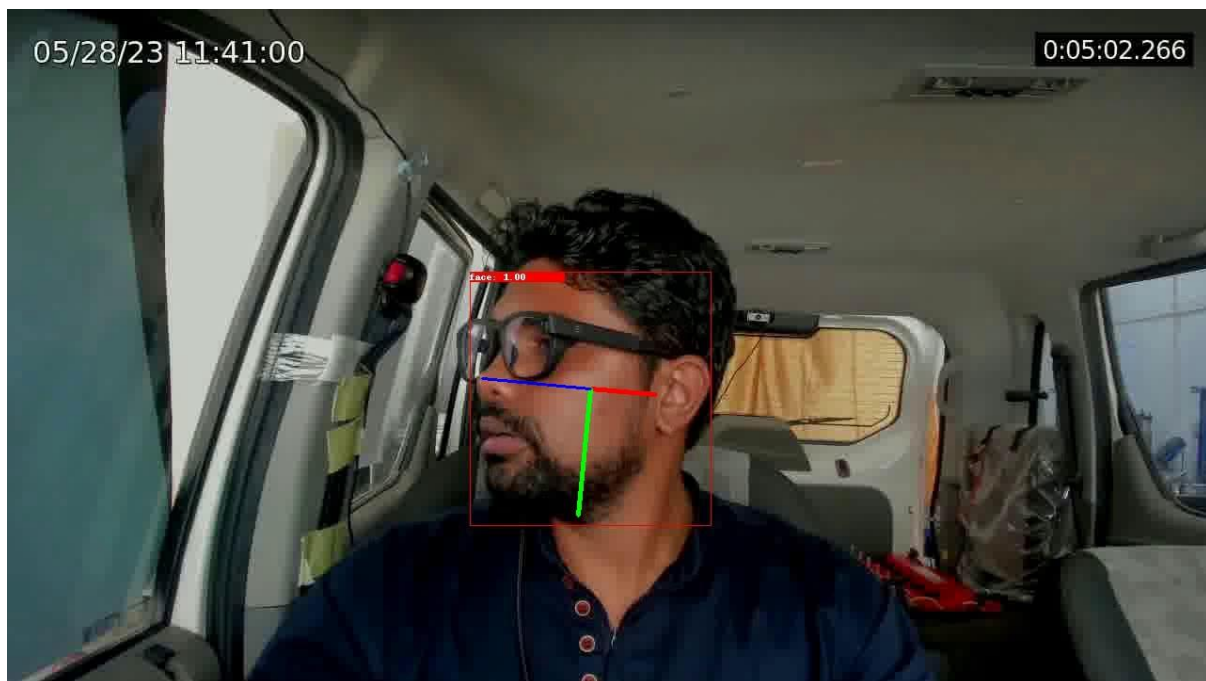


Fig.1 Face bounding box and headpose (yaw, pitch and, roll represented by three different color)

#### **Pupil Detection:**

Pupil was detected using pupil lab pupil detector, python package. Python code of pupil detection originally present in the following link.

<https://github.com/pupil-labs/pupil-detectors>

