opencv

https://vision.fe.uni-lj.si/cvww2016/proceedings/papers/05.pdf
https://www.pyimagesearch.com/2017/05/08/drowsiness-detection-opencv/

https://github.com/whatifif/handgesture
==Imp one

https://github.com/wncc-itsp/p1w13-virtual-mouse-using-hand-gesture
https://thecodacus.com/gesture-recognition-virtual-mouse-using-opencv-python/#.W8VtTs4zbIU

https://www.r-bloggers.com/natural-language-processing-on-40-languages-with-the-ripple-down-rules-based-part-of-speech-tagger/

https://pythonhosted.org/pynput/mouse.html
ethere mouse control option achi
https://github.com/whatifif/handgesture/blob/master/reference.md
https://github.com/whatifif/handgesturecode/blob/master/main.ipynb

Object detection
https://towardsdatascience.com/understanding-ssd-multibox-real-time-object-detection-in-deep-learning-495ef744fab

https://github.com/paolobarbolini/OpenCvMouseControl/blob/master/main.py

https://github.com/lincolnhard/head-pose-estimation

```
import cv2
import numpy as np

cap = cv2.VideoCapture(1)
fourcc = cv2.VideoWriter_fourcc(*'XVID')
out = cv2.VideoWriter('output.avi', fourcc, 20.0, (640,480))
while True:
    ret, frame = cap.read()
    gray = cv2.cvtColor(frame, cv2.COLOR_BGR2GRAY)
    out.write(frame)
    cv2.imshow('frame', frame)
    cv2.imshow('gray', gray)

    if cv2.waitKey(1) & 0xFF == ord('q'):
        break

cap.release()
out.release()
cv2.destroyAllWindows()
```

Drawing and Writing on Images

```
img = cv2.imread('watch.jpg', cv2.IMREAD_COLOR)
cv2.line(img, (0,0), (150,150), (255,255,255))
```

```
import numpy as np
import cv2

img = cv2.imread('watch.jpg', cv2.IMREAD_COLOR)

cv2.line(img, (0,0), (150,150), (255,255,255), 15)
cv2.rectangle(img, (15,25), (200,150), (0,255,0), 5)
cv2.circle(img, (100,63), 55, (0,0,255), -1)

cv2.imshow('image',img)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

255,255,255 ==>White
BGRrepresentation

```
img = cv2.imread('watch.jpg', cv2.IMREAD_COLOR)

cv2.line(img, (0,0), (150,150), (255,255,255), 15)
cv2.rectangle(img, (15,25), (200,150), (0,255,0), 5)
cv2.circle(img, (100,63), 55, (0,0,255), -1)

pts = np.array([[10,5],[20,30],[70,20],[50,10]], np.int32)
pts = pts.reshape((-1,1,2))
cv2.polylines(img, [pts], True, (0,255,255), 3)

font = cv2.FONT_HERSHEY_SIMPLEX
cv2.putText(img, 'OpenCV Tuts!', (0,130), font, 1, (200,255,155), 2, cv2.LINE_AA)

cv2.imshow('image',img)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

Hair cascade C:\Users\anshuman_mahapatra\AppData\Local\Continuum\anaconda3\Lib\site-packages\cv2\data

https://github.com/akshaychandra21/Mouse_Cursor_Control_Handsfree

https://docs.opencv.org/3.0-beta/doc/py_tutorials/py_tutorials.html

http://dlib.net/files/

https://www.pyimagesearch.com/

Read an image

Use the function **cv2.imread()** to read an image. The image should be in the working directory or a full path of image should be given.
Second argument is a flag which specifies the way image should be read.
- cv2.IMREAD_COLOR : Loads a color image. Any transparency of image will be neglected. It is the default flag.
- cv2.IMREAD_GRAYSCALE : Loads image in grayscale mode
- cv2.IMREAD_UNCHANGED : Loads image as such including alpha channel

Note

Instead of these three flags, you can simply pass integers 1, 0 or -1 respectively.
```
import numpy as np
import cv2
# Load an color image in grayscale
img = cv2.imread('messi5.jpg',0)
```

Accessing and Modifying pixel values

Videos