Lab- 12

CSET340- Advanced Computer Vision and Video analytics

Task-1: - Capture Video from Camera, Motion Detection or Optical character recognition (Ocr).

Capture Video from Camera – Task is to capture a video from the camera (using the built-in webcam on laptop), convert it into grayscale video and **display it, play the video and also Save it.**

Motion Detection – Task is to create a background without any motion. Then, find the moving objects in the video using a function called **cv2.findContours**. Once detected the objects, track their movement over time using **background subtraction algorithm** provided by OpenCV. Finally, visualize the objects by drawing a rectangle around them.

Optical character recognition (ocr) – Task is to take a video stream with some frames of text in it and convert it to machine-readable text format using opencv.

Links for help:-

https://docs.opencv.org/4.x/dd/d43/tutorial_py_video_display.html

https://sokacoding.medium.com/simple-motion-detection-with-python-and-opencv-for-beginners-cdd4579b2319

https://techvidvan.com/tutorials/python-opencv-motion-detection-detect-track-excel/#:~:text=To%20detect%20motion%20in%20a,of%20algorithms%20provided%20by%20OpenCV.

https://learnopencv.com/moving-object-detection-with-opencv/

https://pyimagesearch.com/2015/05/25/basic-motion-detection-and-tracking-with-python-and-opencv/

https://pyimagesearch.com/2022/03/07/ocring-video-streams/

https://www.geeksforgeeks.org/text-detection-and-extraction-using-opencv-and-ocr/

Task-2: - Face Emotion Recognition (Using Face expression recognition dataset)

Dataset : https://www.kaggle.com/datasets/jonathanoheix/face-expression-recognition-dataset

Train a Model of your choice (CNN or any Pretrained Models) and then use that model for Real Time Facial Expression detection with live video streaming.

Note:- Submit the notebook file on LMS and Git link.

- Marks will be deduced for late submission.

Links for help:- https://colab.research.google.com/drive/1mZimbXBAJlqgl-04phHxXRYku6EvgUOw

https://colab.research.google.com/github/Ashik9576/Live-Class-Monitoring-System-Face-emotion-Recognition-/blob/main/Face_Emotion_Recognition.ipynb

https://github.com/komalck/FACIAL-EMOTION-RECOGNITION/blob/master/Facial_emotion_recognition.ipynb