Guided Projects Artificial Intelligence & Machine Learning

Guided Projects: Unsupervised Learning

Mean-Shift: Single Object Tracking in Images

Object tracking is one of the most popular areas of **video processing**. The main purpose of object tracking is to estimate the position of the object in images continuously and reliably against **dynamic scenes**. This can be achieved by using the **mean shift object tracking algorithm**. The mean shift algorithm is an efficient approach to **tracking objects** whose appearance is **defined by histograms**. Thus, it can be used to **track non-rigid** objects by discovering **clusters in a smooth density** of samples.

Question:

Using OpenCV implement a single object tracker. Steps to be implemented:

a) Use a pre-recorded video or your webcam to have a video Capture object.
b) Mark the region of interest (ROI or the object you want to track) using it coordinates in the first frame.
c) Calculate the histogram of the ROI.
d) Iteratively calculate the histogram at each location (using cv2,calcBackProject) and then apply mean shift to get the updated location of the ROI.