limhpone / **computervision-final-prep**

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computervision-final-prep / lab / Lab 09 (Tracking)-20251128 / **9.4_detection_tracking.py**

limhpone lab 9-obj tracking   267755b · 2 hours ago

67 lines (53 loc) · 2.15 KB

| Code | Blame |

```python
import cv2
from tracker_utils import MultiObjectTracker

cap = cv2.VideoCapture("video.mp4")
print("Press ESC to exit")

# Initialize the object detector
object_detector = cv2.createBackgroundSubtractorMOG2(history=100, varThreshold=40)
mot = MultiObjectTracker(tracker_type="KCF", use_legacy=True)

while True:
    ret, frame = cap.read()
    if not ret:
        break

    height, width, _ = frame.shape
    # print(f"Frame dimensions: {width}x{height}")

    # Extract the region of interest (ROI) for object detection
    roi = frame[height//2:height, 300:1300]

    mask = object_detector.apply(roi)
    _, mask = cv2.threshold(mask, 254, 255, cv2.THRESH_BINARY)

    # Create a contour to visualize the detected objects
    contours, _ = cv2.findContours(mask, cv2.RETR_TREE, cv2.CHAIN_APPROX_SIMPLE)

    dets = []
    for cnt in contours:
        area = cv2.contourArea(cnt)
        if area > 5000:
            x, y, w, h = cv2.boundingRect(cnt)
```

```
33                  cv2.rectangle(roi, (x, y), (x + w, y + h), (0, 0, 255), 3)
34                  dets.append((x, y, w, h))
35
36              # auto init when no active trackers and we have detections
37              if mot.trackers is None and len(dets) > 0:
38                  dets_nms = mot.nms(dets, iou_thr=0.3)
39                  mot.init_from_boxes(roi, dets_nms)
40
41              # update trackers on ROI, draw in green
42              success, boxes = mot.update(roi)
43              if success and len(boxes) > 0:
44                  for b in boxes:
45                      x, y, w2, h2 = map(int, b)
46                      cv2.rectangle(roi, (x, y), (x + w2, y + h2), (0, 255, 0), 2)
47
48              elif mot.trackers is not None and not success:
49                  # drop trackers if update failed
50                  mot.reset()
51
52              cv2.imshow("Original Frame", frame)
53              cv2.imshow("ROI Mask", mask)
54
55              key = cv2.waitKey(30) & 0xFF
56              if key == 27:                    # ESC key to exit
57                  break
58              elif key == ord('r'):
59                  mot.reset()
60              elif key == ord('s'):
61                  # manual add on current ROI
62                  box = cv2.selectROI("Original Frame", roi, fromCenter=False, showCrosshair=True)
63                  if box is not None and box[2] > 0 and box[3] > 0:
64                      mot.add(roi, box)
65
66      cap.release()
67      cv2.destroyAllWindows()
```