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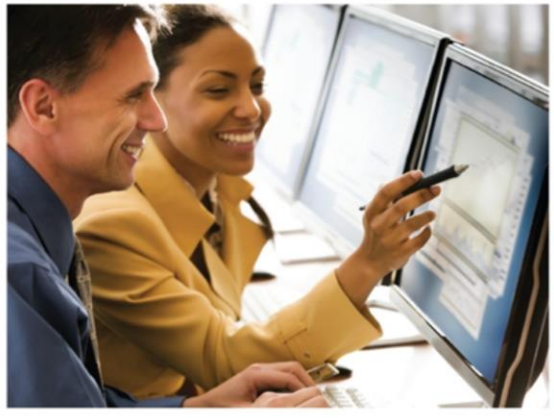
Exercises: Object Detection Using Blob Analysis

AUVSI Foundation: Computer Vision Training



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Thresholding a Traffic Sign

In this exercise, you will write a script that performs segmentation of a stop sign based on color.

1. Load a representative video frame from the MAT-file provided.
   ```
   >> load frame
   ```

2. Use the Color Thresholder App to find thresholds for this frame, which contains a stop sign. Stop signs are red in color.

3. Acquire video from `vipwarnsigns.avi` using a video file reader object.

4. Apply your thresholds to the video to obtain a binary mask.

5. A stop sign could also be sometimes segmented as two or more objects due to the text in the middle. Some of the red flowers in the background may also get segmented. Use morphological operations to remove such disturbances.

Solution

```
>> thresholdSign
```

Blob Analysis for a Traffic Sign

In this exercise, you will write a script that uses blob analysis to extract information from the stop sign and overlay this information onto a video.

1. Use your file from the previous exercise, or the script `thresholdSign`, to extract the binary mask from the `vipwarnsigns.avi` video file.

2. Use a blob analysis object to determine the area, centroid, and bounding box of the detected signs, if any.

3. Remove small objects from the blob analysis.

4. Overlay the area of the largest blob onto the video.

Solution

```
>> extractBlobSign
```