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IMAGE PROCESSING

Lab Session 2: Image Segmentation, Line and Edge Detection

Download from the Internet one color image, then do the following exercises using OpenCV and Python:

Exercise 1: Use the functions $cv2.cvtColor()$ and $cv2.inRange()$ to perform the color thresholding in the downloaded color images. Compare the results with simple thresholding and adaptive thresholding in lab session 1.

Exercise 2: Use the function $cv2.Canny()$ to detect edges of the downloaded image. Compare the results with Laplacian filter and Sobel filter in lab session 1.

Exercise 3: Use the function $cv2.kmeans()$ to perform segmentation on the downloaded image. Compare the results with simple thresholding, adaptive thresholding and color thresholding.

Exercise 4: Use the function $cv2.HoughLines()$ to detect lines in the downloaded image. Display the detected lines using the function $cv2.line()$.

Notice:

- *you are required to upload the codes of your labworks to the google drive folder of the DIP course.*
- *Try to understand the algorithms before you learn the OpenCV functions to implement them.*