VISUAL COMPUTING

ASSIGNMENT 2

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Deadline: 20-Nov-2023

Important note: This assignment can be done individually or in groups of two people

1. (2 points) Take a picture of a cluttered scenario with the presence of several objects, resize the picture as to be 448x336 pixels. Read and show the picture using OpenCV.

2. (4 points) Apply a Gabor filter at 4 orientations. Combine (use the maximum value for each pixel) the four orientations into one filtered image and show the result. Play with the parameters of the filter and show how the filter works with 3 different parameter set values.

3. (4 points) Apply the Canny Edge detector. Show the result and compare to the result from the Gabor.

5. (5 points) Extract features from the images using the SIFT and HOG descriptors.

    a. Show the results, compare and comment on both descriptors.
    b. Briefly describe in your own words the HOG descriptor (min. half a page, include mathematical expressions).

Note: HOG paper can be found at https://www.merl.com/publications/docs/TR94-03.pdf

Deliverable: PDF document with code snippets and results.