Computer Vision Course

Lab 4: Features detection & Classification

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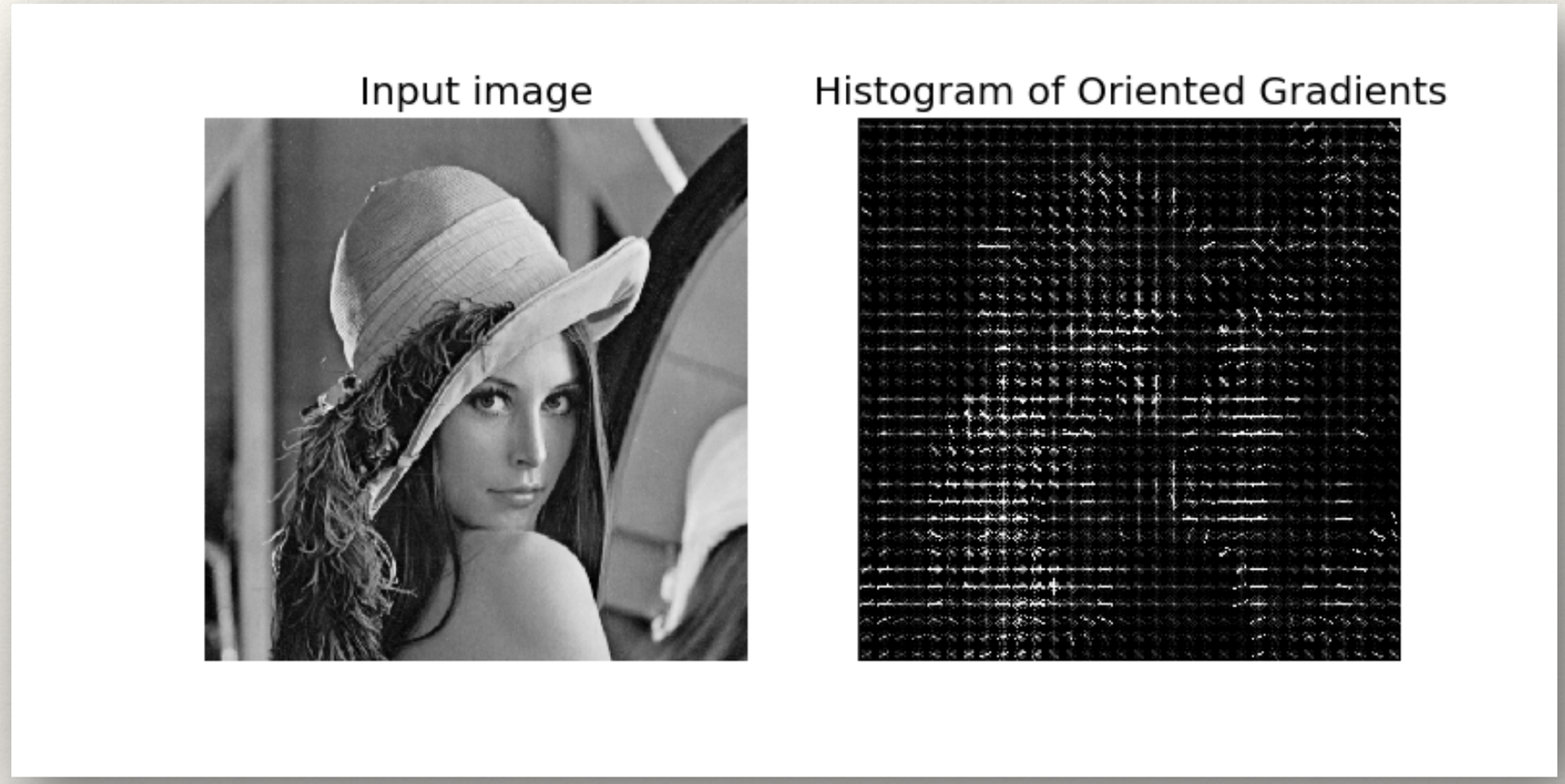
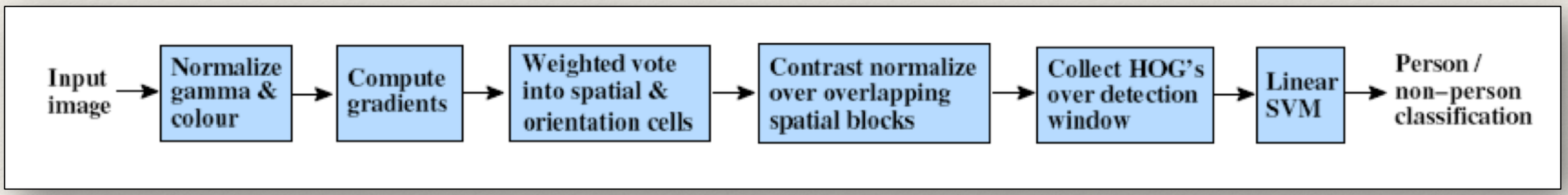
Histogram of Gradients (HOG)



- We want to perform binary classification



Exercise

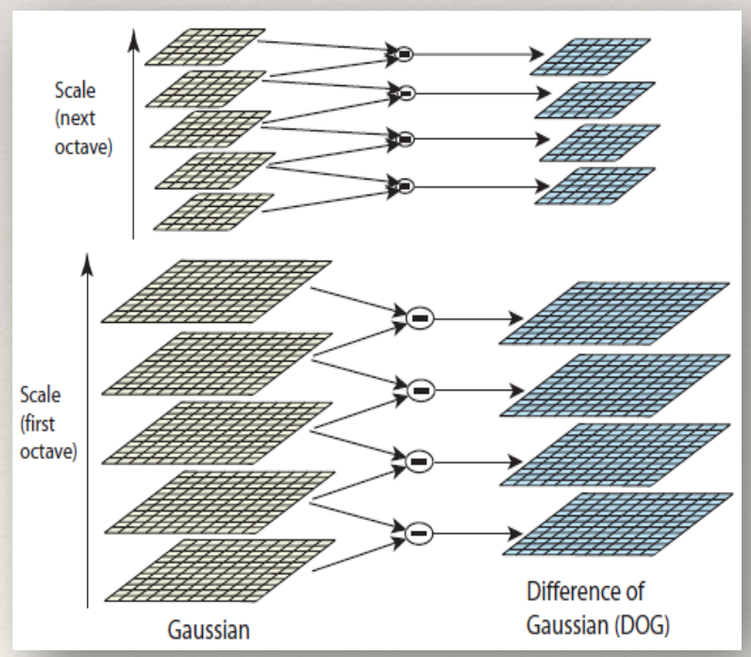
- Plot HOG features using skimage library
- Try google it (solution in the last slide)

SIFT

- The idea is to make scale-invariant the image of concern

1. Construct a subspace representation of the image and progressively apply a Gaussian smoothing filter

2. At every iteration, each image becomes a blurred version of the previous one.



Stitching

translation

rotation

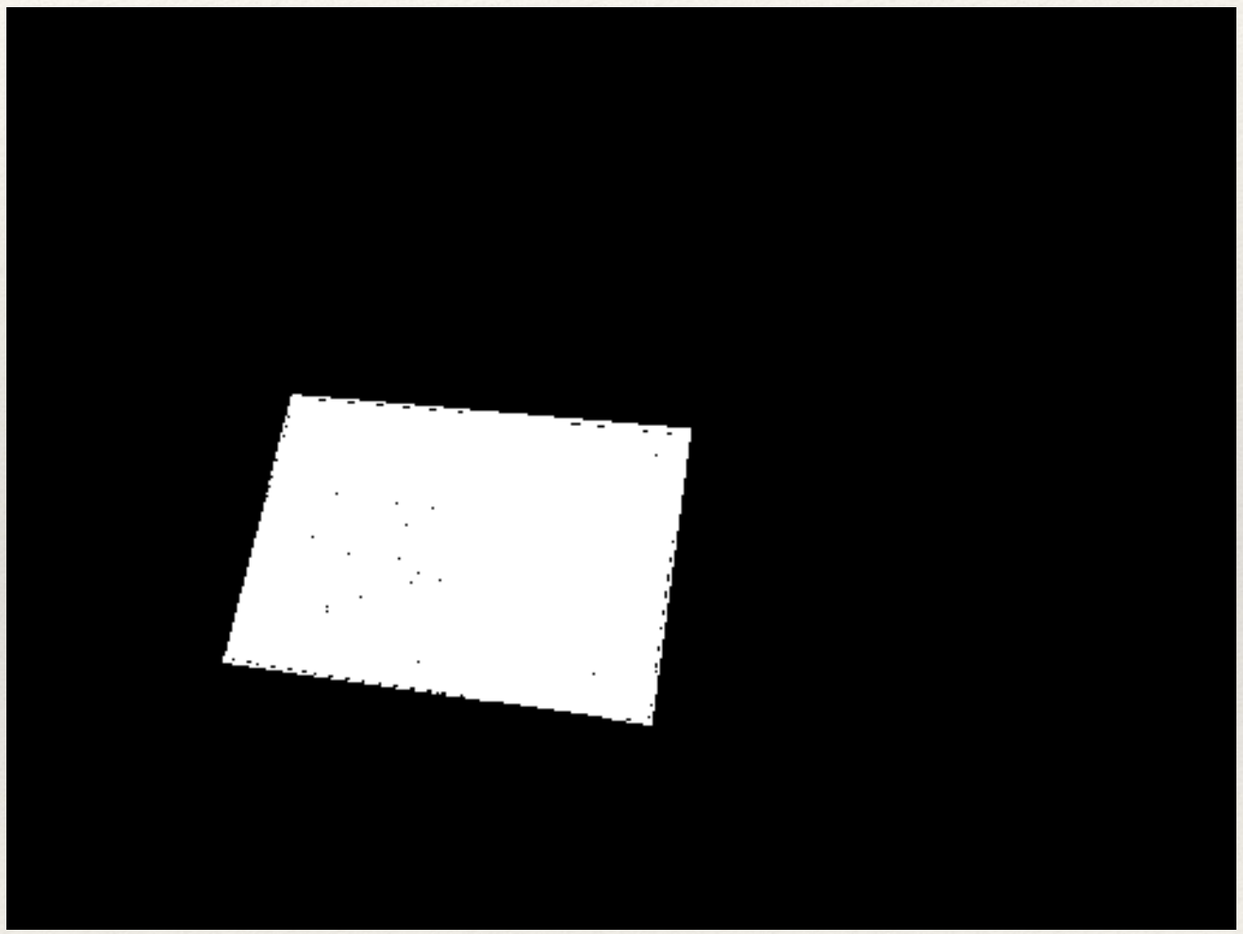
aspect

affine

perspective

cylindrical

Stitching



Stitching

Exercise

- Test with image ‘book.png’
- What’s the difference?

HOG display- Solution

```
from skimage import exposure
from skimage import feature


#compute HOG features for visualisation
(H, hogImage) = feature.hog(frame_copy, orientations=8,
                    pixels_per_cell=(16, 16), cells_per_block=(2, 2),
                    transform_sqrt=True, block_norm="L1",visualize=True)
hogImage = exposure.rescale_intensity(hogImage,
                    out_range=(50, 255))
 hogImage = hogImage.astype("uint8")
```