

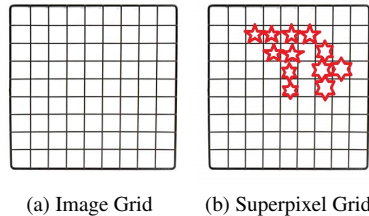
Tutorial n°2

Incorporate texture information into Superpixels segmentation

1 Exercice 1

1. Compute Local Binary patterns (LBP) from segmented superpixels,

Be careful, LBP in his original definition, is computed from regular/rectangular region. Superpixels have irregular shapes and not necessarily rectangular. When you compute LBP, do not consider the neighboring points outside of the superpixel.



Display the original image, the superpixel segmentation, the LBP image from the original image and the LBP computed from the segmented superpixels.

What do you conclude ?

2 Exercice 2

In the slic superpixels segmentation, a distance measure is given as:

$$d_{lab} = \sqrt{(l_k - l_i)^2 + (a_k - a_i)^2 + (b_k - b_i)^2}$$

$$d_{xy} = \sqrt{(x_k - x_i)^2 + (y_k - y_i)^2}$$

$$D_s = d_{lab} + \frac{m}{S} d_{xy} ,$$

What happen when we change:

$$D_s = d_{ab} + \frac{m}{S} d_{xy} + d_{LBP} \quad (1)$$

$$d_{LBP} = |LBP_k - LBP_i| \quad (2)$$

Display the original image, the original superpixel segmentation and the new version of superpixel segmentation. What do you conclude ?

Did the new segmentation incorporate the texture information ?

If not, what do you propose to incorporate texture in the superpixel segmentation ?