

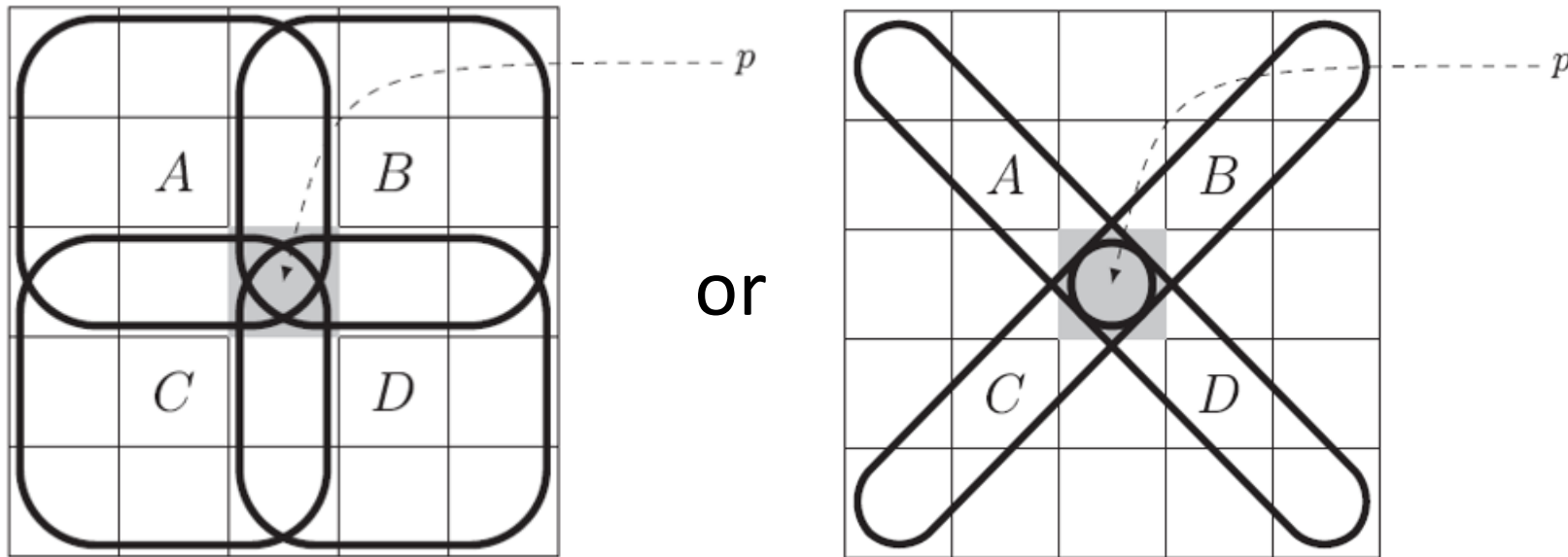
Introduction to Image Processing

HW3

Due: 11/29

HW3.1 Edge-preserving filter

Implement Kuwahara filters and compare the performance (test on two images)



Kuwahara filters

HW3.2 Image rotation

Write a function to implement image rotation. The function should have the syntax

`imrotation(image, n, filt)`

where `n` is the rotation angle (+: anticlockwise, -: clockwise) and `filt` is the filter to use. So, for example, the command

`imrotation(head, 30, bicubic_filt)`

would rotate an image “head” to 30 degree,

using the 5×5 bicubic filtering.

$$\frac{1}{64} \begin{bmatrix} 1 & 4 & 6 & 4 & 1 \\ 4 & 16 & 26 & 16 & 4 \\ 6 & 24 & 36 & 24 & 6 \\ 4 & 16 & 24 & 16 & 4 \\ 1 & 4 & 6 & 4 & 1 \end{bmatrix}$$

Remarks

1. You need to include a test.m to verify this function
2. You need to rotate back the image and compute the PSNR between the original image and the rotated back image. (exclude the black background)
3. Test on two rotation angles.
4. Test on two filters.
5. Test on two images (one has complex textures)