Introduction to Computer Vision Homework 1

Your job is to implement your own version of bilateral filtering. The format must be the same as the OpenCV function **cv2.bilateralFilter**. The function usage is as follows

`J = cv2.bilateralFilter`(I, d, sigmaColor, sigmaSpace)

where I is the input image, d is the size of the filter (the diameter of the neighbourhood around each pixel), and sigmaColor and sigmaSpace are the sigma parameters of the appearance and space kernels respectively. The OpenCV function has two additional parameters which you do not need to implement. Look here for details on **cv2.bilateralFilter.**

https://docs.opencv.org/3.0-beta/modules/imgproc/doc/filtering.html?highlight=cv2.bilateralfilter#cv2.bilateralFilter

Here you can find an example of how the bilateral filter is used:

https://docs.opencv.org/3.1.0/d4/d13/tutorial_py_filtering.html

You can find a file named **test_bilateral.py** in the homework folder. The file will test your filter comparing it with Gaussian Blurring, and the openCV bilateral filter. Run the file and see the result. In the file you will find a function named "**myBilateralFilter**". Right now, the function just returns the input image. Your task is to write the body of the function so it implements the Bilateral Filter. Notice that the input images are of type **float32**, thus black is 0 and white is 1.