

# Standard Median Filter Exercise

**Topic:** The standard median filter is a noise reduction method that is very effective in preserving the details of an image. It replaces each pixel's value with the median value of its neighboring pixels. It performs great when dealing with salt and pepper noise, but it struggles when dealing with Gaussian noise.

**Exercise:** Create a Python script file and perform the following tasks:

- Import OpenCV and NumPy libraries.
- Create a function that takes as input an image and the size of the median filter and performs median filtering on the image. Then, it returns the filtered image. It should use 0-padding in order to prevent the creation of black borders in the image. You can add any extra parameters you desire.
- Read an image.
- Corrupt the image with any type of noise you desire.
- Apply median filtering to the noise image.
- Finally, display the noise image alongside the filtered one.

**Material for better understanding:**

<https://homepages.inf.ed.ac.uk/rbf/HIPR2/median.htm>