



**Computer Vision
CS 6476 , Spring 2018**

PS 0

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1 Input Images

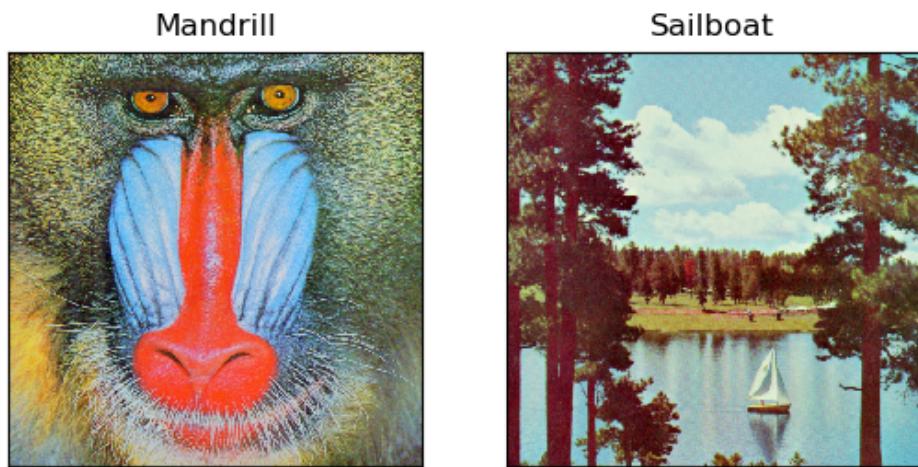


Figure 1: Input images

2 Color planes

2.1 Swap the red and blue pixels

Red and blue pixels swapped

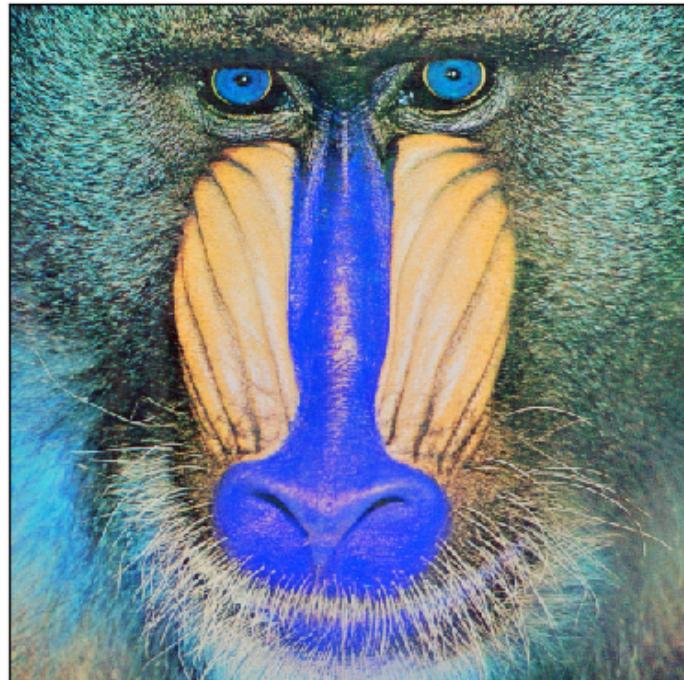


Figure 2: ps0-2-a : Red and blue pixels swapped

2.2 Creation of a monochrome image (M1g)

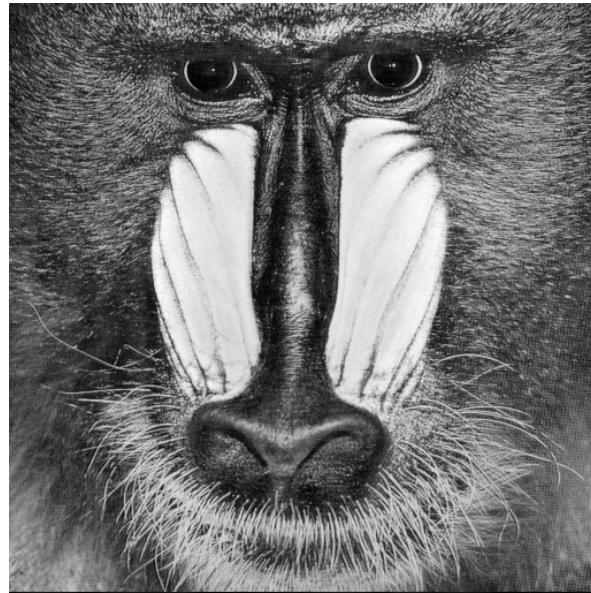


Figure 3: ps0-2-b : Green channel selection

2.3 Creation of a monochrome image (M1r)

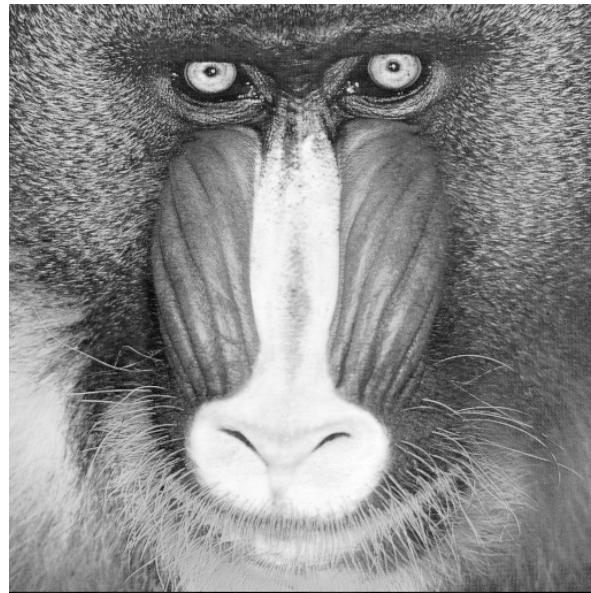


Figure 4: ps0-2-c : Red channel selection

2.4 Comparison

The results seem to be more or less as accurate with the red or the green channels. Nevertheless, we could say that the red monochrome image is better since the human brain is the

more sensible to red light.

3 Replacement of pixels

3.1 Selection and insertion of a ROI

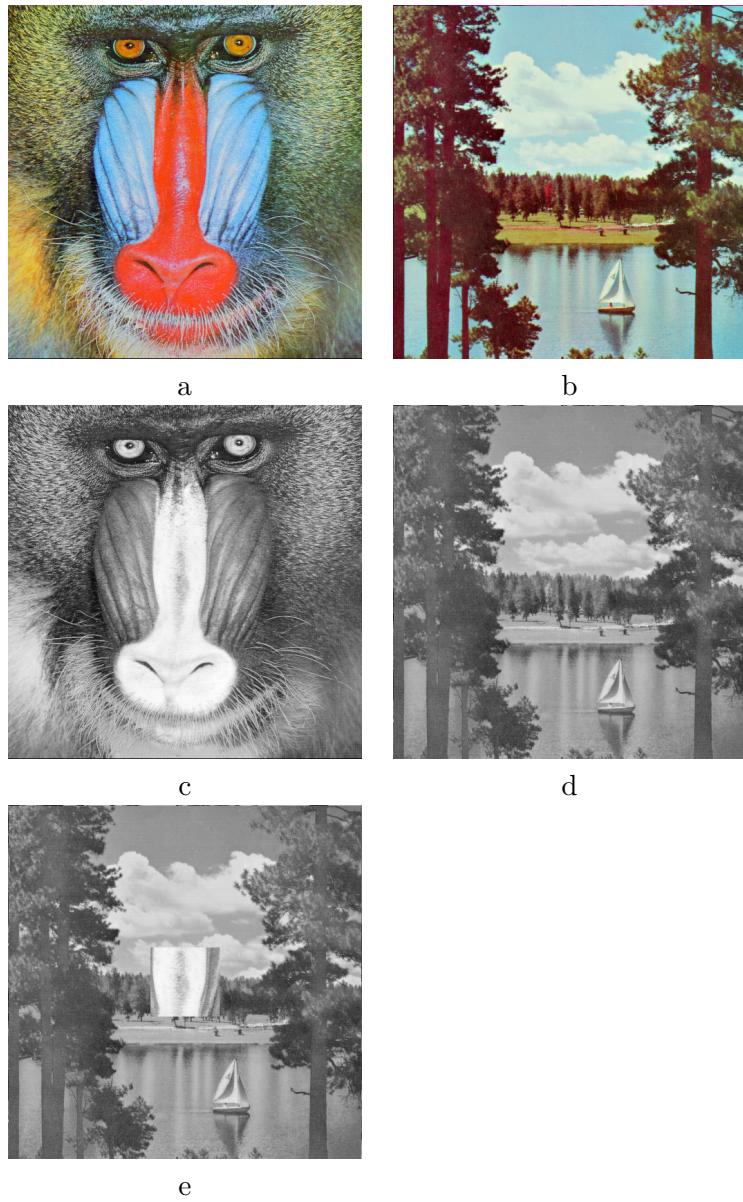


Figure 5: *a.* ps0-3-a-1 : Original Image 1. *b.* ps0-3-a-2 : Original Image 2.
c. ps0-3-a-3 : Red monochrome Image 1. *d.* ps0-3-a-4 : Red monochrome Image 2.
e. ps0-3-a-5 : Insertion of the inner square of the image 1 into the image 2.

4 Arithmetic and Geometric operation

4.1 Determination of some statistical parameters

1. The minimal pixel value of the green monochrome version of the image 1 is : 0.
2. The maximal pixel value of the green monochrome version of the image 1 is : 236.
3. The mean of the green monochrome version of the image 1 is : 128.858776093.
4. The standard deviation deviation of the green monochrome version of the image 1 is : 47.7705860899

Those results seem consistent in value with the range [0,255] since the average is the half of the range.

4.2 Normalization of the image

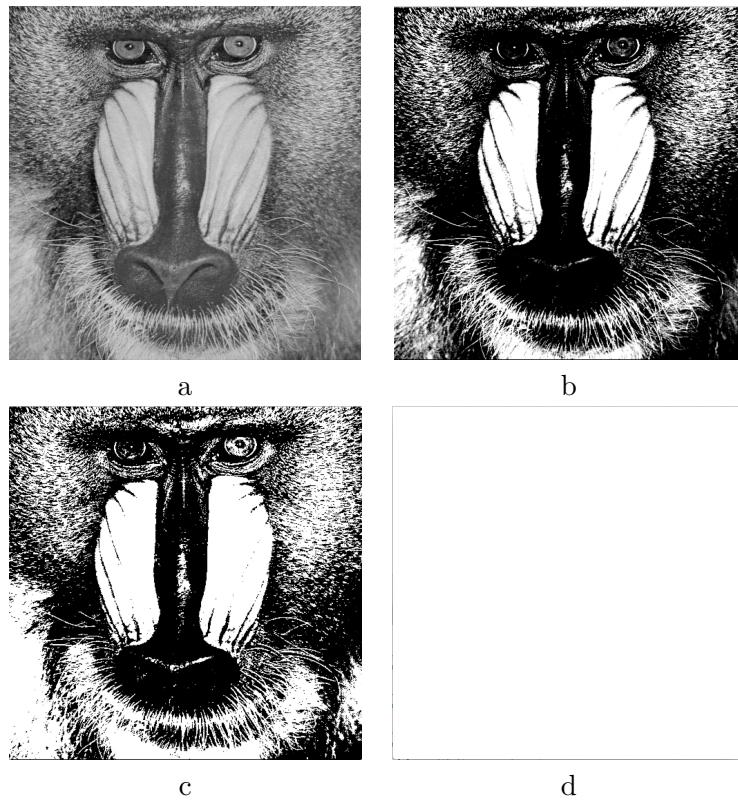


Figure 6: a. ps0-4-b-1 : Original green monochrome image b. ps0-4-b-1 : Normalized image
c. ps0-4-b-1 : Rescaled image d. ps0-4-b-1 : Final image

4.3 Shift

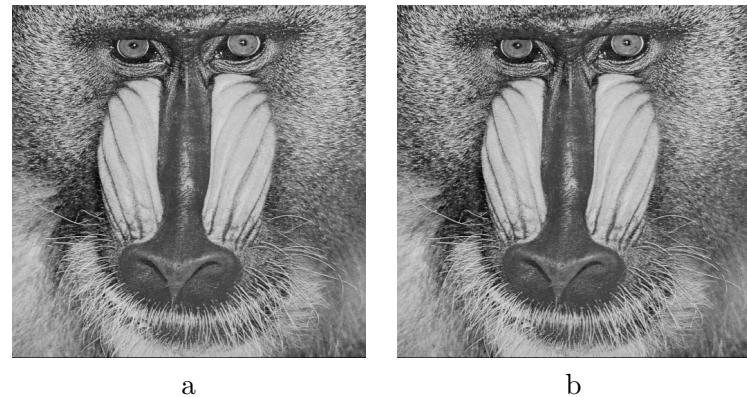


Figure 7: *a.ps0-4-c-1* : Original green monochrome image . *b. ps0-4-c-2* : Shifted Image.

4.4 Subtraction of the shifted version and the original version

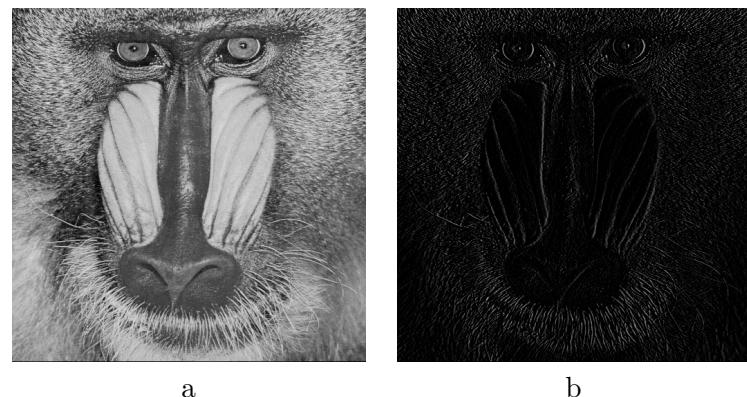


Figure 8: *a. ps0-4-d-1* : Original green monochrome image . *b. ps0-4-d-2* : Subtracted Image.

5 Noise

5.1 Noise introduction in the green monochrome image

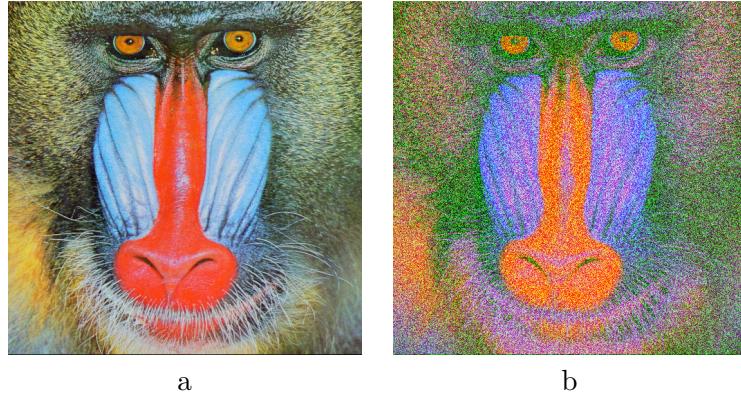


Figure 9: *a.* ps0-5-a-1 : Original Image 1 . *b.* ps0-5-a-2 : Image 1 with green noise.

5.2 Noise introduction in the blue monochrome image

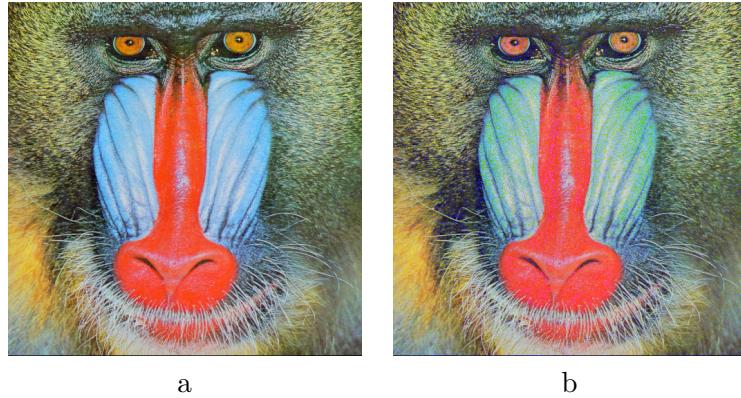


Figure 10: *a.* ps0-5-b-1 : Original Image 1 . *b.* ps0-5-b-2 : Image 1 with blue noise.

5.3 Comparison

The blue version is well better than the green one. Indeed, the green noise can be observed instantaneously even with a small value of σ whereas the blue noise must be really strong to be distinguished. As a matter of fact, the color to which the brain is the less sensitive is the blue so it seems logical that the value has to be increased a lot in order for us to see the impact.