



UNIVERSITÉ LIBRE DE BRUXELLES

INFO-H500 - Image acquisition and processing

PROJECT – IMAGE ENHANCEMENT

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1 Noise reduction

- **mean filter** : The mean filter should be applied on each channel if the image is 'RGB'. It reduces the noise of the image but not very significant.
- **median filter** : This is the best filter for the image used. We completely removed the noise and we see details clearly.
- **Otsu filter** : The filter gives better result than the mean filter, but the image is blur.

2 contrast of an image

- **Auto-level** : This filter increases the contrast of the image. The disadvantage of this filter is that it correctly work on grey levels images only.
- **Gamma correction** : Depending on the parameter on gamma correction, the filter is used to increase or decrease the contrast of an image. The contrast image is increased using a parameter greater than 1.
- **ImageEnhance** : The contrast of the image is usely increased using the *ImageEnhance.Contrast()* function. The parameter should be greater than 1.

3 Increase color saturation

- **HSV image** : Theoretically, we could increase saturation using the HSV channels but the result is quite surprising because the method changes drastically the color in some area.
- **ImageEnhance** : The function *ImageEnhance.Contrast()* increase the color saturation using a parameter greater and close to 1.

4 colorize image

Changing the hue of the image changes the color of the image.

5 sharpness of an image

The sharpness of an image is enhanced using the *ImageEnhance.Sharpness()* function.

6 Brightness of an image

The brightness of an image is enhanced using the *ImageEnhance.Sharpness()* function.