Lecture 2 notes and knowledge - IP

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1 Pre-lecture

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2 Lecture

2.1 Pre-face: Introduction

2.2 Color definition.

Bayer pattern, is used on sensors to get RGB channels correctly, these are scattered equally in a grid. The mean intensity can be found by:

$$I = \frac{(R + G + B)}{3}$$

Converting a proper grayscale can be done by:

$$I = W_R \cdot R + W_G \cdot G + W_B \cdot B \; where \; sum(W_X) = 1$$

3 Knowledge

- What does Point Processing mean?
- Describe Brightness and Contrast
- Describe greylevel mapping and how it relates to Brightness and Contrast
- What is a histogram?
  A plot of how much of a value occours throughout a specific scenario.
- How can a histogram be used to choose the greylevel mapping?
  By utilizing a histogram of the intesity/brightness of an imag, we can average out a picture and get a proper visible image from a potential previous too dark or bright of an image
- What is histogram stretching?
  By "stretching" the histogram, we can achieve better lighting-conditions in an image.
- What is thresholding and how is it related to a histogram and to segmentation?
  By thresholding, we can filter out specific colors or scales we want to ROI. Utilizing histogram stretching we can better find a proper lighting-environment than if controlled by external lights.
- What is the difference between Achromatic and Chromatic?
  Achromatic is intensity of the light.
  Chromatic is light waves and the visual range.

- What is the difference between Subtractive Color and Additive Color?
  Additive color gives a white color value when the rest are added up.
  Subtractive gives a black color value (Like the sun).
- Describe the three different color spaces (RGB, rgI, HSI)
  RGB; Red Green blue, values goes from 0 to 255.
  HSI; Hue saturation and intensity.
- What are their characteristics and where are they used?

4 Important notes