CSP780 Computer Vision: Assignment 3
Demosaicing

SAHIL - 2016UCS0008

March 5, 2019

1 Introduction

For demonstration purpose, the image used in the Code notebook is present in the MSR Database at: *Dataset_LINEAR_without_noise / bayer_panasonic / input / 225.png*.
The input is the bayer pattern and the reference image is provided in the *groundtruth* folder of dataset.

To perform **Demosaicing** the following algorithm is followed:

- The different color channels are extracted from the bayer pattern.
- The green color channel is interpolated by taking average at missing pixels using neighbouring pixels.
- The red and blue color channels are interpolated using bilateral filters.
- High frequency component is extracted from the green color channel.
- This HFC is added to the red and blue color channels after smoothing them using gaussian filter to first remove high frequency.
- The coloured image is thus reconstructed and PSNR is calculated.

2 Results

The ground truth and predicted image for '225.png' are shown below.

(a) 225.png ground truth (b) 225.png predicted

Figure 1: Demosaicing image 225.png

We get a PSNR score of 31.26 for this image.