

CSP780 Computer Vision: Assignment 2

SAHIL - 2016UCS0008

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1 Introduction

The given images have been interpolated using the **bilateral filter**. The following steps are followed in order to do so, independently for each of the colour channels in the image:

- An image is interpolated by first copying the pixel values in alternate rows and columns of an image of double its size. The rest of the pixels are zero.
- The zero pixel values are then modified and calculated using the bilateral filter. Assuming it to be the mean of the neighbouring pixels, the bilateral filter is calculated and then convolved with the interpolated image to get the actual value at that location.

2 Results

The original and interpolated image for '1.tif' are shown below. The quality of the image is maintained and the edges are preserved as we have used a bilateral filter for interpolation.

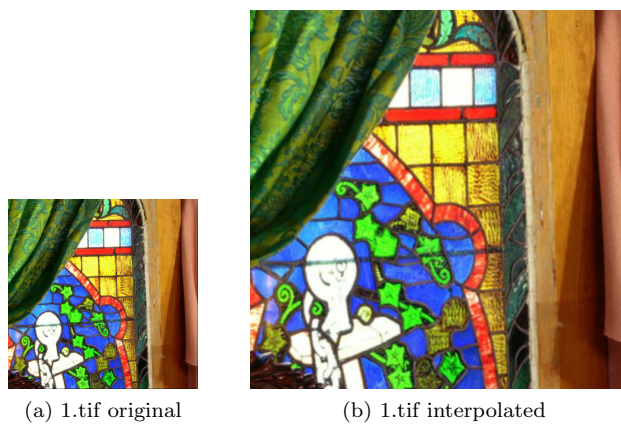


Figure 1: Applying interpolation on 1.tif

For measuring PSNR scores, the reference used is the CV2's in-built resize function which uses bilinear interpolation.

PSNR Scores taking cv2 interpolation as reference

Image Name	PSNR Value
1.tif	28.8
2.tif	32.74
3.tif	27.71
4.tif	26.19

Figure 2: Table showing the PSNR scores