# BonusCV

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1 Scratch Implementation

- Padding of images with kernel size 3

- For each pixel, a window of size 3x3 is stored so as it can be matched with the pixels in other image.

- Assuming that the cameras have only translation effect, the epipolar line should be in the horizontal direction, hence the matching pixel should be in the same row as pixel.

- The window obtained from above pixel is now matched with each pixel window in other image and coordinate of pixel with best match is returned.

- Disparity is calculated between them and intensity values (to that pixel co-ordinate) are assigned to new image (depth map).

- Results with normal and downsampled (1/2) images are noted with different kernel values (3,5,7).
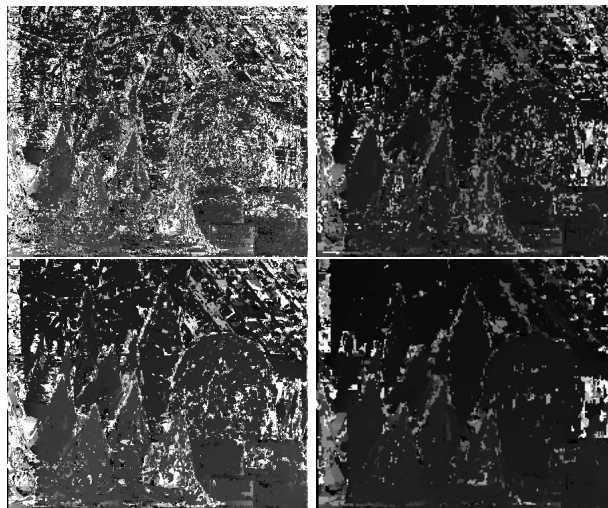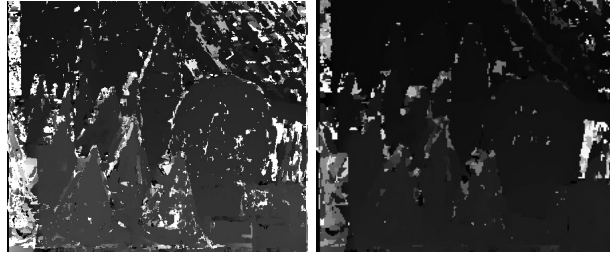
2 Inbuilt Library

- $cv2.StereoBM_create(numDisparities = 48, blockSize = 5)$ is used for setting up the stero library, where number of disparities are 48 and block size is 5.

- $stereo.compute(imgL, imgR)$ is used to generate the final depth image. Results are as follow :