ASSIGNMENT 3

You are given stereo image of an art scene (im1.png and im2.png). These images are epipolar rectified and all distortions have been removed beforehand.
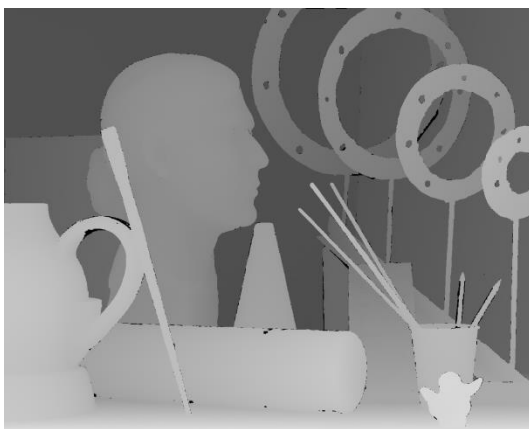

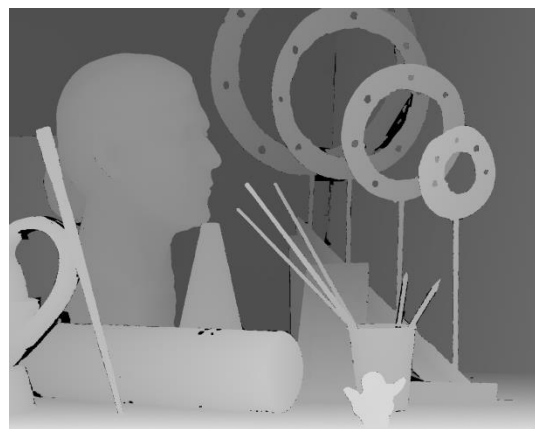im1.png   im2.png

In addition, ground truth disparity images (GTdisp_im1.png and GTdisp_im2.png) are also provided. The ground truth disparity images provide the correct relation between stereo images. Note that the black areas in ground truth (i.e. intensity=0) means unknown disparity.

GTdisp_im1.png   GTdisp_im2.png

1- (30 Points) You are required to run a dense matching code you like that loads the above-given stereo image pair (left: im1.png and right: im2.png) and automatically finds the disparity image based on user-defined parameters. Explain the approach in your own words shortly, and describe the parameters you set to run the approach.

2- (50 points) The quality of disparity you find is commonly measured in bad pixels (i.e. the percentage of pixels in the estimated disparity that are different from the ground truth). Thus, implement a function that counts those pixels in the estimated disparity that are different from the ground truth and returns a percentage of the different pixels in the whole image. You can consider a pixel wrong if its value is off

by more than 1 disparity in either direction. Please do not take into account unknown disparity values in the ground truth during the percentage calculation.

3- (20 points) Can you compute depth information from your disparity result? If this computation is possible, please comment on the method and additional information you require for such a depth computation.

ADDITIONAL INSTRUCTIONS FOR REPORT PREPARATION AND SUBMISSION

1. The homework report must be in <u>pdf</u> format.
2. All submitted files should include student's name and number in the <u>file name</u>.
3. Explanations for the code should be given in the code <u>as comments</u> and also in the report.
4. Attach all files in a single <u>zip file</u>).
5. Although collaborations are encouraged, <u>plagiarism</u> will not be tolerated!