

Manual for Depth Map Automatic Generator 5 (DMAG5)

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This is the manual for the non-gui version of Depth Map Automatic Generator 5 (DMAG5) [1].

The output of DMAG5 is a left and right depth/disparity map and a left and right occlusion maps.

Prior to attempting to generate a depth map from a stereo pair, it is highly recommended to rectify the images with Epipolar Rectification 9b (ER9b) [3].

Assuming you have a left and right image stored in a directory somewhere on your computer, the files `dmag5.bat` and `dmag5_input.txt` must be copied to that directory. These two files are provided in the directory `dmag5_test` along with a set of sample input files. The file `dmag5.bat` must be modified so that the path to `dmag5.exe` is the correct one for your computer.

The format of `dmag5_input.txt` is as follows:

```
Name of image 1 (left image)
Name of image 2 (right image)
Minimum disparity
Maximum disparity
Name of depth/disparity map for image 1 (left depth/disparity map)
Name of depth/disparity map for image 2 (right depth/disparity map)
Name of occlusion map for image 1 (left occlusion map)
Name of occlusion map for image 2 (right occlusion map)
Window radius
Alpha
Truncation value (color cost)
Truncation value (gradient cost)
Epsilon
Disparity tolerance
Radius (occlusion smoothing)
Sigma space (occlusion smoothing)
Sigma color (occlusion smoothing)
Downsampling factor
```

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The file names cannot have spaces in them. I would not use a full path format like `C:\this_dir\that_dir\image.png` but simply `image.png`. I also wouldn't use a point in the body of the name (`image_ref.png` is ok but `image.ref.png` is not). The supported image file formats are png, tiff, and jpeg.

The parameters used in `dmag5_input.txt` are explained in [1].

The minimum and maximum disparities can be obtained from the output of ER9b or by using Disparity Finder 2 (DF2) [2].

It is not recommended to use images that are too big. I personally recommend images that are in the one to two megapixels range although one can certainly try with larger images and see what happens. To speed up the computation for larger images, one can increase the downsampling factor.

If you cannot scroll to the beginning of the command window (DMAG5 prints out useful info as it runs), you need to increase the screen buffer size of the command window by doing the following: Right-click on the icon in the upper left and then click on Properties; Click on the Layout tab; Increase the Screen Buffer Size Height to the maximum, which is 9999; Click OK. You should now be able to get to the beginning of the printouts next time you run DMAG5.

References

- [1] Ugo Capeto. Depth map automatic generator 5 (dmag5). <http://3dstereophoto.blogspot.com/2014/05/depth-map-automatic-generator-5-dmag5.html>. Accessed July 9, 2016.
- [2] Ugo Capeto. Disparity finder 2 (df2). <http://3dstereophoto.blogspot.com/2013/06/disparity-finder-2-df2.html>. Accessed July 9, 2016.
- [3] Ugo Capeto. Epipolar rectification 9b (er9b). <http://3dstereophoto.blogspot.com/2016/02/epipolar-rectification-9b-er9b.html>. Accessed July 9, 2016.