

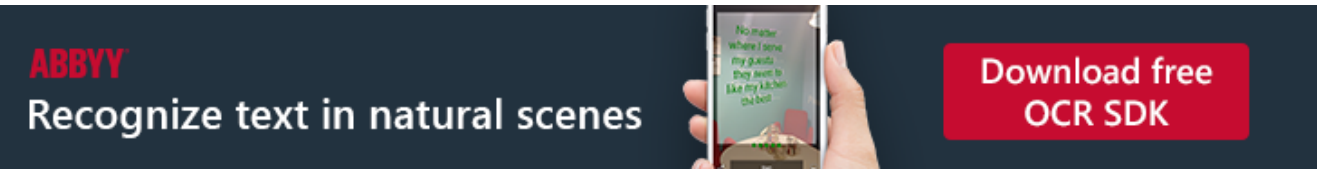
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Depth image from moving object using single static camera



I need to reconstruct a depth map from an image sequence taken by a single static camera of a moving object.

As far as I understand I can calculate the depth of a point found in two images using a stereo camera using the intercept theorem. Is there any way to calculate depth information using only a single camera and matching points from multiple images instead?

Any comments and alternative solutions are welcome. Thanks in advance for your help!

opencv camera computer-vision perspectivecamera 3d-reconstruction

asked Aug 13 '13 at 13:43

 [user2678767](#)
6 1 2

1 Answer

There are some algorithms which help you get depth from a single image. A list of them is mentioned here, http://make3d.cs.cornell.edu/results_stateoftheart.html

These techniques use MRFs and assume that the scene is made up of a collection of planes.

A moving object does not provide any information about the depth (until unless you know the depth of some other moving object), however a single rotating camera can help in extracting depth.

answered Aug 14 '13 at 10:54

 [Bharat](#)
1,550 8 28

- I don't need absolute depth. Relative depth and manual calibration would be good enough in my case. But it seems like I need stereo. – [user2678767](#) Aug 14 '13 at 11:18
- using older techniques, yes you would need stereo, however if you use recent MRF based algorithms, you would be able to obtain depth for the complete scene (including the moving object), however these methods might not be real time. – [Bharat](#) Aug 14 '13 at 11:34
- Realtime processing is a must have. I think I need to change the technology to stereo or something else to measure depth. – [user2678767](#) Aug 14 '13 at 17:23
- stereo would be the best solution, but I think people have used 3D depth estimation from single images also, you can have a look at these links as they have used it for robotic applications, source code is also available, cs.cornell.edu/~asaxena/rccar and cs.cornell.edu/~asaxena/learningdepth – [Bharat](#) Aug 14 '13 at 21:42