Abstract

The essence of an image is a projection from a 3-D scene onto a 2-D plane, during which the depth information is lost. The 3-D point corresponding to a specific image point is constrained to be on the line of sight. From a single image, it is very difficult to determine the depth information of various object points in an image. If two or more 2-D images are used, then the relative depth point of the image points can be calculated which can be further used to reconstruct the 3-D image by projecting the image points which includes the depth information as well. This paper presents two techniques namely binocular disparity and photometric stereo for depth calculation and 3-D reconstruction of an object in an image as it requires minimum user intervention. Binocular disparity method requires a pair of stereo images to compute disparity and depth to generate the desired 3-D view whereas the photometric stereo method requires multiple images under different light directions.
An Approach to Calculate Depth of an Object in a 2-D Image and Map it into 3-D Space

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**Index Terms**

Computer Science  
Image Processing

**Keywords**

Feature point  
Binocular disparity  
Edge detection  
Depth  
Photometric stereo  
Normal map  
Highlight.