Abstract

When photometric stereo technique is used to recover shape and 3D information of an object from multiple images, it is common to assume that the light sources being used are collimated. When the light sources that are being used are actually point light sources, as in robot applications for weld seam inspection or underwater imaging, such an assumption causes significant error. The error increases further when the imaging system is deployed in an attenuating and scattering media. In such situations, a purely analytical solution is not possible. Current work proposes a novel iterative algorithm for recovering shape and 3D information in such situations.

References

- Nicodemus, F. E., Richmond, J. C., Hsia, Ginsberg, I. W. and Limperk, T., 1977. NBS

**Index Terms**

Computer Science  
Algorithms

**Keywords**

Photometric Stereo  
Point Light Sources  
Attenuating Media  
Scattering Media.