



OPTIMAL USAGE OF COLOR FOR DISPARITY ESTIMATION IN STEREO VISION (MonAmOR10)

* Author(s) :

Eran David Pinhasov
Nahum Shimkin
Yehoshua Y. Zeevi

(Technion – Israel Institute of Technology, Israel)
(Technion – Israel Institute of Technology, Israel)
(Technion – Israel Institute of Technology, Israel)

* Abstract :

Most of the stereo algorithms today use only Luminance images, assuming that the chromatic channels are redundant. This is based on the assumption that the Luminance channel holds most of the information. We propose to improve the disparity estimation by working in a transformed color space. The optimal color space is found by minimizing the disparity estimation variance, which is calculated from the stereo-pair input images. The transformed images can be used as input for stereo vision algorithms. We examine both local and global versions of the proposed process and a local adaptive approach as well, which selects the number of channels to be used during the correspondence process. The improved performance of these methods is demonstrated using synthetic and real stereo pairs.