

On Phase Based Stereo Matching and Its Related Issues

Authors : András Rövid, Takeshi Hashimoto

Abstract : The paper focuses on the problem of the point correspondence matching in stereo images. The proposed matching algorithm is based on the combination of simpler methods such as normalized sum of squared differences (NSSD) and a more complex phase correlation based approach, by considering the noise and other factors, as well. The speed of NSSD and the preciseness of the phase correlation together yield an efficient approach to find the best candidate point with sub-pixel accuracy in stereo image pairs. The task of the NSSD in this case is to approach the candidate pixel roughly. Afterwards the location of the candidate is refined by an enhanced phase correlation based method which in contrast to the NSSD has to run only once for each selected pixel.

Keywords : stereo matching, sub-pixel accuracy, phase correlation, SVD, NSSD

Conference Title : ICCSIE 2014 : International Conference on Computer Science and Information Engineering

Conference Location : Tokyo, Japan

Conference Dates : May 29-30, 2014