

***Abstract: Enhancement of Generic Graph cut Algorithm by Flat Area Filtering in Stereo Matching***

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**Abstract**

This paper describes an advanced approach in enhancing the performance of the conventionally used graph cut algorithm. While a large number of graph cuts for solving the stereo matching problem have been proposed as can be seen on the Middlebury website, those have some limitations such as relatively slow speed compared to local matching algorithms and poor disparity reconstruction the area where intensity varies smoothly. In order to accomplish the performance enhancement, we propose two preprocessing steps applicable to the conventional graph cuts that can handle occluded area. First one is the extraction of the textureless area so as to fix the area as an occluded one when applying the graph cut algorithm. Second one is the introduction of a precise dissimilarity cost considering the sub-pixel intensity variation so as to reduce the convergence time. We used a recently developed graph cut proposed by Kolmogorov and Zabih(2006). We set the extracted textureless area as the occluded one, and did the sum of absolute difference of sub-pixel intensity as the cost function. The experimental results show enhanced disparity information and shorter processing time as well as robust performance.

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