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An Improved Depth Map Estimation Method Based on Motion Detection

by

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Abstract

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BASED ON MOTION DETECTION

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Depth map estimation is one of the important research areas in image processing. This thesis proposes an improved depth map estimation approach from a video stream of cartoon. It is based on the motion detection. Most depth map estimation approaches based on motion detection usually have two disadvantages. One is that the depth values of the same object have big differences. The other is time-consuming. To solve those problems, we propose an improved approach that includes three steps. First, a revised search strategy is designed in block matching based motion estimation. It helps to reduce the computation time. Then a revised depth consistency approach is used to reduce the large depth value differences in the same object. Finally, mean shift approach is used to segment the original color image and project the depth map onto the color segmentation. It further helps to reduce the depth value differences in the same object. Experiment results are promising.

Keywords—3D video, depth map, motion estimation, color segmentation, Scale-invariant feature transform.

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