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A Fast and Efficient Video Object Plane Extraction Method Based on Watershed Segmentation

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In order to achieve object-based functionalities in image sequences, a segmentation algorithm is applied to extract the video object planes (VOPs). This paper presents a fast and efcient VOP extraction algorithm for image sequences with stationary background, based on a watershed segmentation scheme. In order to fasten the algorithm, the watershed algorithm is performed on just some chosen frames. A region merging algorithm, based on the change detection mask (CDM), is then performed between each frame and the rst frame of the sequence to extract the newly appeared objects in the scene. Subsequently, using a hypothesis test, the correct object plains are determined. To extract the moving objects, the same CDM and hypothesis test are performed on each two successive frames. For frames on which the watershed algorithm has not applied, a segmentation updating procedure is performed. Experimental results show the efciency of the proposed algorithm.