VIDEO OBJECT BOUNDARY RECONSTRUCTION BY 2−PASS VOTING (WedPmPO1)

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Abstract:
In this paper we propose a voting−based object boundary reconstruction approach. Tensor voting has been studied by many people recently, and it can be used for boundary estimation on curves or irregular trajectories. However, the complexity of saliency tensor creation limits its applications in real−time systems. To address this, in this paper, we introduce an alternative approach based on tensor voting. Rather than creating saliency tensors, we use a “2−pass” method for orientation estimation. For the first pass, Sobel detector is applied on a coarse boundary image to get the gradient map. In the second pass, each pixel puts decreasing weights based on its gradient information, and the direction with maximum weights sum is selected as the correct orientation of the pixel. After the orientation map is obtained, pixels begin linking edges or intersections along their direction. The approach is applied to various video surveillance clips under different conditions, and the experimental results demonstrate significant improvement on the final extracted objects accuracy.