

Abstract: A New Foreground Detection Method Using Multiple-Thresholded Local Binary Patterns and Auxiliary Color Features

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Abstract

Detecting foreground regions in an image produced by a fixed camera is an important technique for a visual surveillance system, because it can provide greatly useful information for other higher level of intelligent video analysis. In this paper, we propose a novel real-time foreground detection method utilizing local spatio-temporal context of a scene. To subtract background regions, we construct background models based on texture and color features. Our new texture feature is computed by applying dynamically changing multiple thresholds and used as the primary component to capture spatial information of a local region. The color feature which is directly extracted from YCrCb color space plays a role as an auxiliary component for removing cast-shadows and filling non-textured foreground regions. For efficient operation in terms of the time, both models are built and maintained by a codebook-based background modeling scheme, and the minimum morphological operations are employed for post-processing. The experiment results demonstrate significant outperformance of the proposed method over others.

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