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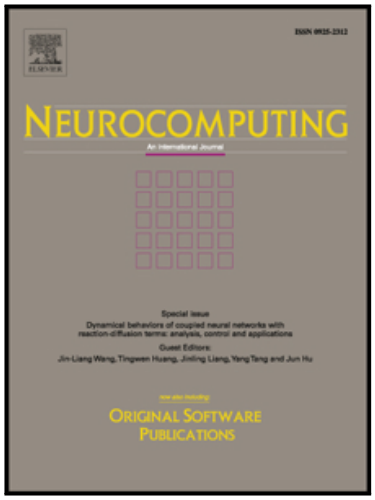

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Appearance Features in Encoding Color Space for Visual Surveillance

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Abstract

Person re-identification and visual tracking are two important tasks in video surveillance. Many works have been done on appearance modeling for these two tasks. However, existing feature descriptors are mainly constructed on three-channel color spaces, such like RGB, HSV and XYZ. These color spaces somehow enable meaningful representation for color, yet may lack distinctiveness for real-world tasks. In this paper, we propose a multi-channel Encoding Color Space (ECS), and consider the color distinction with the design of image feature descriptor. In order to overcome the illumination variation and shape deformation, we design features on the basis of the Encoding Color Space and Histogram of Oriented Gradient (HOG), which enables rich color-gradient characteristics. Additionally, we extract Second Order Histogram (SOH) on the descriptor constructed to capture abstract information with layout constrains. Exhaustive experiments are performed on datasets VIPeR, CAVIAR, CUHK01 and Visual Tracking Benchmark. Experimental results on these datasets show that our feature descriptors could achieve promising performance.

Keywords: Person re-identification, tracking, encoding color space, HOG.
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