1. Perceptual hash-based feature description for person re-identification

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Abstract: Person re-identification is one of the most important and challenging problems in video surveillance systems. For person re-identification, feature description is a fundamental problem. While many approaches focus on exploiting low-level features to describe person images, most of them are not robust enough to illumination and viewpoint changes. In this paper, we propose a simple yet effective feature description method for person re-identification. Starting from low-level features, the proposed method uses perceptual hashing to binarize low-level feature maps and combines several feature channels for feature encoding. Then, an image pyramid is built, and three regional statistics are computed for hierarchical feature description. To some extent, the perceptual hash algorithm (PHA) can encode invariant macro structures of person images to make the representation robust to both illumination and viewpoint changes. On the other hand, while a rough hashing may be not discriminative enough, the combination of several different feature channels and regional statistics is able to exploit complementary information and enhance the discriminability. The proposed approach is evaluated on seven major person re-identification datasets. The results of comprehensive experiments show the effectiveness of the proposed method and notable improvements over the state-of-the-art approaches. © 2017.
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