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Spatial-temporal Representatives Selection and Weighted Patch Descriptor for Person Re-identification

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Abstract

How to represent the sequential person images is a crucial issue in multi-shot person re-identification. In this paper, we propose to select the spatial-temporal informative representatives to describe the image sequence. Specifically, we address representatives selection as a row-sparsity regularized minimization problem which can be effectively solved via convex programming. The sparsity of the representatives is controlled by a regularization parameter based on both spatial and temporal dissimilarities. Furthermore, we design a weighted patch descriptor by employing the random walk with restart model to propagate the patch weights on the person image. Finally, we utilize the cross-view quadratic discriminant analysis as the metric learning to mitigate the cross-view gaps among different cameras. Extensive experiments on three benchmark datasets iLIDS-VID, PRID 2011 and SAIVT-SoftBio demonstrate the promising performance of the proposed method.

Keywords: Multi-shot person re-identification; Informative representatives; Spatial-temporal; Weighted patch descriptor.

1. Introduction

Person Re-identification (Re-ID) aims to recognize the same individual crossing non-overlapping camera networks, which is a crucial step of surveillance systems in modern society. **Despite of years of effort, it still faces big challenges**

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