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Dynamic Imposter Based Online Instance Matching for Person Search

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Abstract

Person search aims to locate the target person matching a given query from a list of unconstrained whole images. It is a challenging task due to the unavailable bounding boxes of pedestrians, limited samples for each labeled identity and large amount of unlabeled persons in existing datasets. To address these issues, we propose a novel end-to-end learning framework for person search. The proposed framework settles pedestrian detection and person re-identification concurrently. To achieve the goal of co-learning and utilize the information of unlabeled persons, a novel yet extremely efficient Dynamic Imposter based Online Instance Matching (DI-OIM) loss is formulated. The DI-OIM loss is inspired by the observation that pedestrians appearing in the same image obviously have different identities. Thus we assign the unlabeled persons with dynamic pseudo-labels. The pseudo-labeled persons along with the labeled persons can be used to learn powerful feature representations. Experiments on CUHK-SYSU and PRW datasets demonstrate that our method outperforms other state-of-the-art algorithms. Moreover, it is superior and efficient in terms of memory capacity comparing with existing methods.

Keywords: Person search, pedestrian detection, person re-identification, dynamic pseudo-label

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