

# A Strong Baseline for Tiger Re-ID and its Bag of Tricks

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Paper ID 20

## Abstract

*As an instance-level recognition task, person re-identification methods always calculate local features by horizontal pooling. It is based on a simple assumption that pedestrians always stand vertically. But as to wildlife re-identification task, we can not make similar assumption since the various view-angles of wildlife. In this paper, we propose a novel dynamic partial matching method. In our module, global feature learning benefits greatly from local feature learning, which performs an alignment/matching by flipping local features and calculating the shortest path between them. Besides the partial matching method, we also consider a series of data augmentation methods such as flip as new id, random whitening, random crop and so on. And we also use an example sampling strategy, i.e., hard negative mining, for training. In addition, we ensemble the models with different backbones and epochs using imagenet pre-trained models. Extensive experiments validate the superiority of our method for tiger Re-ID. Code has been released at [https://github.com/vvi ctoryuki / tiger\\_rei d\\_pytorch](https://github.com/vvi ctoryuki / tiger_rei d_pytorch).*

## 1. Introduction

Tiger re-identification (Re-ID) task aims to match tiger appearing in different non-overlapping camera views, which has raised increasing attention in the field of wildlife monitoring and conservation. As an instance-level recognition problem, this task extract discriminative features of each image. Similar to common re-identification tasks such as Person Re-ID [24, 11, 26] and Vehicle Re-ID [15, 12, 6, 21], tiger Re-ID has noisy background and illumination in various monitoring systems. Each tiger has

Figure 1: Illustration of retrieval results. Given a query image, we need to pick out similar images across cameras. Besides global feature, we add local feature to help training our model. We compare the similarity of the parallel part of tigers such as head, body and tail.

almost the same pattern and shape, which makes tiger Re-ID more challenging. Besides, the number of pictures captured from different perspectives is usually unbalanced. For example, the side face of the tiger is most easily captured by cameras. In this paper, we propose an enhanced Re-ID model guided by metric learning and ID classification jointly and our model won the third place in Plain Re-ID Track of CVWC2019 challenge.

For a Re-ID task, given a query image, we need to find instances which have same identity in a big database. Therefore, we need a suitable metric learning method which can be applied to compute similarities between the query items and gallery items. An adaptive similarity metric can improve the performance of image matching. Here, we obtain the image features by DCNN and choose the L2 Euclidean distance to compute a similarity score for retrieval task. After that we use triplet loss to pull the features from













