# 浏览式阅读

## 1 自己的总结、评价以及应用

本文实现了这样一种优化：how to cluster multi-view data and how to perform clustering without parameter selection on cluster size

实现方法：project raw data into one space in which the projection embraces the geometric consistency (GC) and the cluster assignment consistency (CAC).

简单点说：

GC保证只有同一object的不同views才能建立连接（外部）——扩大外部差异

the GC aims to learn a connection graph from a projection space wherein the data points are connected if and only if they belong to the same cluster.

CAC保证属于同一object的不同views之间尽可能建立连接——缩小内部差异(intrinsic similarities内在相似性)

The CAC aims to minimize the discrepancy of pairwise connection graphs induced from different views based on the view-consensus assumption, i.e., different views could produce the same cluster assignment structure as they are different portraits of the same object.

## 2 文章的主要问题（abstract、疑问句中）

本文就介绍了这样一个东西：Torchreid以及它的几大特性

a software library built on PyTorch that allows fast development andend-to-end training and evaluation of deep re-ID models

## 3 结论（abstract以及conclusion中）

## 4 思路脉络（小标题中的关键句）

1. **Introduction**

计算机视觉的基本流程：

Feature engineering特征工程 + metric learning度量学习：a two-stage pipeline

本文就干了这一件事：

This motivates us to design a generic framework that provides a standardised data-loading interface, basic training pipelines compatible with different re-ID models, and more importantly, is easy to extend

最近的一些变化：

For CNN model learning, Torchreid currently implements two training pipelines, which are classification with softmax2 loss and metric learning with triplet3 loss, the two widely used (and most effective) objective functions in the literature.

2 Overview of Torchreid

3 Main Modules

3.1 Data

模型搭建过程中最难的一步：

the construction of unified data loaders for preparing data

第一个部分Data\_loader

The training and test data loaders are wrapped in a high-level class called DataManager,

DataManager包括这些工作：sampling strategy, data augmentation methods and data loaders.有两种分类：ImageDataManager 和 VideoDataManager

3.2 Engine

Engine作为一个module可以provide universal training loops and other reusable features, such as data parsing, model checkpointing and performance measurement，同时，它还提供了两种学习范式learning paradigms

分别是：

1 classification with softmax loss (ImageSoftmaxEngine & VideoSoftmaxEngine)

2 metric learning with triplet loss (ImageTripletEngine & VideoTripletEngine)

另外，torchreid还提供了一些training tricks（训练技巧）：

1 to reduce overfitting，the label smoothing regulariser (Szegedy et al., 2016) is implemented for the softmax pipeline.

2 for better transfer learning，the pipeline allows the pre-trained CNN layers to be frozen during early training (Geng et al., 2016) where the layers are specified by users.

Visualisation toolkit

Torchreid为我们提供了一些函数：

1 visrank,which can visualise the ranking result of a re-ID CNN by saving for each query image the top-k similar gallery images (k is decided by users)将gallery images中排名top-k的照片展示出来

2 visactmap,, which stands for visualising activation maps. Given an input image, the activation map can be used to analyse where the CNN focuses on to extract features

3.3 Models

The currently available models are listed below,

• ImageNet classification models: ResNet (He et al., 2016), ResNeXt (Xie et al., 2017),

SENet (Hu et al., 2018), DenseNet (Huang et al., 2017), Inception-ResNet-V2 (Szegedy

et al., 2017), Inception-V4 (Szegedy et al., 2017), and Xception (Chollet, 2017).

• Lightweight models: NASNet (Zoph et al., 2018), MobileNetV2 (Sandler et al., 2018),

ShuffleNet(V2) (Zhang et al., 2018; Ma et al., 2018), and SqueezeNet (Iandola et al., 2016).

• Re-ID specific models: MuDeep (Qian et al., 2017), ResNet-mid (Yu et al., 2017),

HACNN (Li et al., 2018), PCB (Sun et al., 2018), MLFN (Chang et al., 2018), OSNet (Zhou

et al., 2019b), and OSNet-AIN (Zhou et al., 2019a)

**4 Discussion**

## 5 难理解点