validate\_on\_lfw

输入参数：模型文件夹和数据文件夹

--image\_size

--lfw\_pairs

--lfw\_nrof\_folds

--distance\_metric : 0是欧几里得，1是余弦距离

--use\_flipped\_images：Concatenates embeddings for the image and its horizontally flipped counterpart.

--subtract\_mean :减去feature的平均值

--use\_fixed\_images\_standardization: ??

lfw

get\_paths方法：

返回两个数组: path\_list，返回路径组，issame\_list，返回对应位置的路径组

tensorboard --logdir=./

测试：

Softmax

python3 src/calculateHWRate.py data/facenet/20180408-102900/20180408-102900.pb /home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/ --image\_size 160 --margin 32 --gpu\_memory\_fraction 0.9 --distance\_metric 1 -- subtract\_mean

Softmax + central loss:

CUDA\_VISIBLE\_DEVICES=3 python3 src/calculateHWRate.py data/facenet/20170512-110547/20170512-110547.pb /home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/ --image\_size 160 --margin 32 --gpu\_memory\_fraction 0.9 --distance\_metric 0

数据增广之后

CUDA\_VISIBLE\_DEVICES=3 python3 src/calculateHWRateAfterAugumentation.py data/facenet/20170512-110547/20170512-110547.pb /home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/ --image\_size 160 --margin 32 --gpu\_memory\_fraction 0.9 --distance\_metric 0 --replace\_dir\_1 ~/Disk/HW\_can\_not\_recognition/replace1/ --replace\_dir\_2 ~/Disk/HW\_can\_not\_recognition/replace2/

fine tune的命令

fine tune2018的命令：

CUDA\_VISIBLE\_DEVICES=1 python3 src/finetune.py --logs\_base\_dir ~/Disk/logs/facenet/ --models\_base\_dir ~/Disk/models/facenet/ --data\_dir data/HW\_1\_Face/mtcnn160py/ --image\_size 160 --model\_def models.inception\_resnet\_v1 --lfw\_dir data/lfw/lfw\_mtcnnpy\_160/ --optimizer ADAM --learning\_rate -1 --max\_nrof\_epochs 500 --batch\_size 90 --keep\_probability 0.4 --random\_flip --use\_fixed\_image\_standardization --learning\_rate\_schedule\_file data/learning\_rate\_schedule\_classifier\_finetune.txt --weight\_decay 5e-4 --embedding\_size 512 --lfw\_distance\_metric 1 --lfw\_use\_flipped\_images --lfw\_subtract\_mean --validation\_set\_split\_ratio 0.01 --validate\_every\_n\_epochs 5 --pretrained\_model data/facenet/20180402-114759/model-20180402-114759.ckpt-275 --gpu\_memory\_fraction 0.9 --epoch\_size 100 --image\_dir data/HW\_1\_Face/raw/ --margin 32

Fine tune 2017的命令

CUDA\_VISIBLE\_DEVICES=2 python3 src/finetune.py --logs\_base\_dir ~/Disk/logs/facenet2017/ --models\_base\_dir ~/Disk/models/facenet2017/ --data\_dir data/HW\_1\_Face/mtcnn160py --image\_size 160 --model\_def models.inception\_resnet\_v1 --lfw\_dir data/lfw/lfw\_mtcnnpy\_160/ --optimizer RMSPROP --learning\_rate 0.0001 --max\_nrof\_epochs 500 --batch\_size 90 --keep\_probability 0.8 --random\_crop --random\_flip --weight\_decay 5e-5 --embedding\_size 128 --validation\_set\_split\_ratio 0.01 --validate\_every\_n\_epochs 5 --pretrained\_model data/facenet/20170512-110547/model-20170512-110547.ckpt-250000 --gpu\_memory\_fraction 0.9 --epoch\_size 100 --center\_loss\_factor 1e-2 --center\_loss\_alfa 0.9 --image\_dir data/HW\_1\_Face/raw/ --margin 32

use only 2000 pics to fine-tune and validate with \_2.jpg

CUDA\_VISIBLE\_DEVICES=2 python3 src/finetune.py --logs\_base\_dir ~/Disk/logs/facenet2017/ --models\_base\_dir ~/Disk/models/facenet2017/ --data\_dir data/HW\_1\_Face/mtcnn160py --image\_size 160 --model\_def models.inception\_resnet\_v1 --lfw\_dir data/lfw/lfw\_mtcnnpy\_160/ --optimizer RMSPROP --learning\_rate 0.0001 --max\_nrof\_epochs 500 --batch\_size 50 --epoch\_size 40 --keep\_probability 0.8 --random\_crop --random\_flip --weight\_decay 5e-5 --embedding\_size 128 --validate\_every\_n\_epochs 5 --pretrained\_model data/facenet/20170512-110547/model-20170512-110547.ckpt-250000 --gpu\_memory\_fraction 0.9 --epoch\_size 100 --center\_loss\_factor 1e-2 --center\_loss\_alfa 0.9 --image\_dir data/HW\_1\_Face/raw/ --margin 32 --val\_dir data/HW\_1\_Face/mtcnn160py2/

Number of classes in training set: 2000

Number of examples in training set: 1999

Number of classes in validation set: 2000

Number of examples in validation set: 1982

用triplet loss fine tune

CUDA\_VISIBLE\_DEVICES=2 python3 src/finetuneTriplet.py --logs\_base\_dir ~/Disk/logs/facenet2017/ --models\_base\_dir ~/Disk/models/facenet2017/ --data\_dir ~/Disk/HW\_1\_Face/mtcnn160py/ --image\_size 160 --model\_def models.inception\_resnet\_v1 --lfw\_dir data/lfw/lfw\_mtcnnpy\_160/ --optimizer RMSPROP --learning\_rate 0.00001 --max\_nrof\_epochs 500 --batch\_size 90 --keep\_probability 0.8 --random\_crop --random\_flip --weight\_decay 5e-5 --embedding\_size 128 --validation\_set\_split\_ratio 0.01 --validate\_every\_n\_epochs 5 --pretrained\_model data/facenet/20170512-110547/model-20170512-110547.ckpt-250000 --gpu\_memory\_fraction 0.9 --epoch\_size 100 --center\_loss\_factor 1e-2 --center\_loss\_alfa 0.9 --image\_dir data/HW\_1\_Face/raw/ --margin 32 -- lfw\_distance\_metric 0

CUDA\_VISIBLE\_DEVICES=2 python3 src/finetuneTripletLoss.py --logs\_base\_dir ~/Disk/logs/facenet2017/ --models\_base\_dir ~/Disk/models/facenet2017/ --data\_dir ~/Disk/HW\_1\_Face/mtcnn160py/ --image\_size 160 --model\_def models.inception\_resnet\_v1 --lfw\_dir data/lfw/lfw\_mtcnnpy\_160/ --optimizer RMSPROP --learning\_rate 0.001 --max\_nrof\_epochs 500 --batch\_size 90 --keep\_probability 0.8 --random\_crop --random\_flip --weight\_decay 5e-5 --embedding\_size 128 --pretrained\_model data/facenet/20170512-110547/model-20170512-110547.ckpt-250000 --gpu\_memory\_fraction 0.9 --epoch\_size 100 --image\_dir data/HW\_1\_Face/raw/ --margin 32

train的命令

预处理图片

CUDA\_VISIBLE\_DEVICES=3 python3 src/align/align\_dataset\_mtcnn.py ~/Disk/vggface2\_train/train/ ~/Disk/vgg\_mtcnnpy\_160 --image\_size 160 --margin 32 --random\_order --gpu\_memory\_fraction 0.9

vgg\_mtcnn\_180: 1,867,864 items, totalling 87.9 GB

Softmax:

CUDA\_VISIBLE\_DEVICES=1 python3 src/train\_softmax.py --logs\_base\_dir ~/Disk/logs/facenetSoftmax/ --models\_base\_dir ~/Disk/models/facenetSoftmax/ --data\_dir ~/Disk/vgg\_mtcnnpy\_182/ --image\_size 160 --model\_def models.inception\_resnet\_v1 --lfw\_dir data/lfw/lfw\_mtcnnpy\_160/ --optimizer ADAM --learning\_rate -1 --max\_nrof\_epochs 500 --batch\_size 90 --keep\_probability 0.4 --random\_flip --use\_fixed\_image\_standardization --learning\_rate\_schedule\_file data/learning\_rate\_schedule\_classifier\_vggface2.txt --weight\_decay 5e-4 --embedding\_size 512 --lfw\_distance\_metric 1 --lfw\_use\_flipped\_images --lfw\_subtract\_mean --validation\_set\_split\_ratio 0.01 --validate\_every\_n\_epochs 5 --gpu\_memory\_fraction 0.9 --image\_dir data/HW\_1\_Face/raw/ --margin 32

Number of classes in training set: 5110

Number of examples in training set: 1841548

Number of classes in validation set: 5110

Number of examples in validation set: 21204

Softmax + central loss

CUDA\_VISIBLE\_DEVICES=2 python3 src/train\_softmax.py --logs\_base\_dir ~/Disk/logs/facenetCenter/ --models\_base\_dir ~/Disk/models/facenetCenter/ --data\_dir ~/Disk/vgg\_mtcnnpy\_182/ --image\_size 160 --model\_def models.inception\_resnet\_v1 --lfw\_dir data/ --optimizer RMSPROP --learning\_rate -1 --max\_nrof\_epochs 80 --keep\_probability 0.8 --random\_crop --random\_flip --learning\_rate\_schedule\_file data/learning\_rate\_schedule\_classifier\_center.txt --weight\_decay 5e-5 --center\_loss\_factor 1e-2 --center\_loss\_alfa 0.9 --image\_dir data/HW\_1\_Face/raw/ --margin 32

can not find the face:

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/265\_1.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/1107\_1.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/1701\_2.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/1344\_2.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/1869\_2.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/257\_1.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/552\_1.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/183\_1.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/1993\_2.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/1052\_2.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/522\_1.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/1560\_2.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/806\_1.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/1394\_1.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/389\_1.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/895\_2.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/1727\_1.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/1431\_1.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/94\_1.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/1369\_2.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/178\_1.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/717\_1.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/1788\_2.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/1450\_2.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/1626\_2.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/986\_2.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/1195\_1.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/202\_1.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/331\_1.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/1396\_1.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/1151\_2.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/665\_2.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/1877\_1.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/996\_2.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/350\_2.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/1724\_2.jpg

/home/sun/Develop/ly/facenet/data/HW\_1\_Face/raw/1381\_2.jpg

经过数据增广下标为1的文件共有3200，一共可识别851张图片

经过数据增广下标为2的文件共有\*\*\*，一共可识别\*\*\*张图片

facenet get\_dataset

返回[ ImageClass(class\_name, image\_paths), ImageClass()…]

image\_paths是包含该人物的所有图片的路径的数组

现有的模型

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 减mean，齐 | 不减mean，齐 | 不对齐, 减 | 增广 |
| 2017 | 0.6455/0.7495 | 0.6455/0.7495 | 0.613/0.714 | 0.648/0.7565 |
| 2017-finetuneWith2000 | 0.648/0.7505 | 0.648/0.7505 | 不计算 | 0.6505/0.7575 |
| 2017-finetuneWith2000-cosDistance |  | 0.6465/0.749 |  | 0.6495/0.756 |
| 2017-finetuneWithAug |  |  |  |  |
| 2018central |  |  |  |  |
| 2018central-finetunewith2000 |  |  |  |  |
| 2018-finetuneWithAug |  |  |  |  |
| 20180402 | 0.474/0.624 | 比减，小一点 | 0.4695/0.617 |  |

2017数据增广的效果：

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 19个1，18个2 | 增广之前1 | 增广之后1 | 增广之前5 | 增广之后5 |
| 265\_1.jpg |  | G |  | G |
| 1107\_1.jpg |  |  |  |  |
| 1701\_2.jpg |  |  |  |  |
| 1344\_2.jpg |  |  |  |  |
| 1869\_2.jpg |  |  |  | G |
| 257\_1.jpg |  |  |  |  |
| 552\_1.jpg |  | G |  | G |
| 183\_1.jpg | G | G | G | G |
| 1993\_2.jpg |  | G |  | G |
| 1052\_2.jpg |  |  |  | G |
| 522\_1.jpg |  |  |  |  |
| 1560\_2.jpg |  |  |  |  |
| 806\_1.jpg |  |  |  | G |
| 1394\_1.jpg |  | G | G | G |
| 389\_1.jpg |  |  |  |  |
| 895\_2.jpg |  | G |  | G |
| 1727\_1.jpg |  | G |  | G |
| 1431\_1.jpg |  |  |  |  |
| 94\_1.jpg |  |  |  |  |
| 1369\_2.jpg |  |  |  |  |
| 178\_1.jpg |  |  |  |  |
| 717\_1.jpg |  |  |  |  |
| 1788\_2.jpg |  |  |  |  |
| 1450\_2.jpg |  |  |  |  |
| 1626\_2.jpg |  |  |  |  |
| 986\_2.jpg |  |  |  |  |
| 1195\_1.jpg |  | G |  | G |
| 202\_1.jpg |  |  |  |  |
| 331\_1.jpg |  |  |  |  |
| 1396\_1.jpg |  |  |  |  |
| 1151\_2.jpg |  |  |  |  |
| 665\_2.jpg |  |  |  | G |
| 1877\_1.jpg |  |  |  |  |
| 996\_2.jpg |  |  |  |  |
| 350\_2.jpg |  |  |  | G |
| 1724\_2.jpg |  |  |  | G |
| 1381\_2.jpg |  |  |  |  |

记录

|  |  |  |  |
| --- | --- | --- | --- |
| Epoch | 43 | 80 |  |
| 0/80/110 | 0.4405 | 0.5800 | 0.6175 |
| 0/43/80 | 0.4250 | 0.5670 | 暂停了（不知道为什么）max\_nrof\_epoches=80了 |
| 0/80/150 |  |  |  |
| 1/100/150 |  |  |  |