11785 HW2P2-Writeup

Zhetian Jin (zhetianj)

1. Introduction

For this homework, I adopted Resents structure to solve the face recognition and verification problem. At first, I used some common data transformation. Then changed the layers of my model and get several different models (with accuracy around 75%). Train the model with 0.05 learning rate SGD optimizer, and shrink learning rate by 10 after unchanged accuracy. At last I ensemble the result of those models.

2. Classification

a. Data Augment

For training data, I use

1. CenterCrop 2.RandomHorizontalFlip 3.RandomRotation

4. Normalize, to prevent overfitting problem.

b. Model Structure

It's mainly the default ResNet Structure, with layers of (1,2,3,4)/(2,3,3,2)…

And I shrink the stride to 1 and kernel size to 3.

c. Ensemble

I added 2 models' estimated probabilities of each test sample, then applied SoftMax to get the prediction.

3. Verification

a. Model Structure

It's the same as classification model, I use the final flatten layer's output as embedding. Then calculate the pair images' cosine similarity.

4. Result

a. Classification

79.13% on public board, ranked 15th

b. Verification

0.93994 on public board, ranked 11th

5. References

[1] Szegedy, C., Ioffe, S., Vanhoucke, V. and Alemi, A.A., 2017, February. Inception-v4, inception-resnet and the impact of residual connections on learning. In *Thirty-first AAAI conference on artificial intelligence*.