

Project Description(Midterm Report)

In my project, I build a CNN network to do the bulloy action classificaiton.

Dataset

In my dataset, I seperate it to two parts. One for test, the other for evaluation. Specifically, I take 85 percents images in each class for testing(`train_data`), 25 percents images for evaluating(`val_data`).

In each part, I divded images into 10 categories, they are laughing, pullinghair, quarrel, slapping, punching, stabbing, gossiping, strangle, isolation and nonbullying

note that the dataset of unbulloying action comes from [Stanford 40 Action](#)

CNN Model

In my model, I made two covolutional layers and one fully connected layer.

In convolutional layer, I make inchannel in first layer to 3 dimension(Red, Green, Blue) and outchannel to 16. For the second convulotional layer, inchannel to 16 and outchannel to 32

Both of these convolutional layers are using 3X3 filter size, stride =2 , padding = 1 and 2x2 for max pooling and using ReLU for activation function.

To prevent overfitting, I add BatchNormalization for each convlutional layer and Dropout 50 percents information after ending of each convolutional layer.

In fully connected layers, I flated 565632 neurons to do 10 categories classification

Weight Initialization

To initilize weight, I use xavier to initial the weight of two convlutional layers, 1 for Batch Normalization layer, 0.01 for fully connected layer.

Testing & Trainging

I have set learning rate to 0.005, batch_size to 8

In training part, I made epoch number to 35 and print currnt epoch , step and loss after each step

For testing, I have write a test script called 'test.py' and 'mycnn.ckpt' is my model.

Running the command of `python test.py test.jpg(or any other test image)` to test that script

The Problem I encounted

Overfitting

I think my model still have overfitting problem, and my module's loss function is tending to stable after 20 epoch

Program problem

When I training module, a warning occasionally throw for me(show below), I took long time to fix it but still not work

```
/home/wufangm/.conda/envs/pytorch_env/lib/python3.6/site-packages/PIL/TiffImagePlugin.py:780: UserWarning: Corrupt EXIF data. Expecting to read 2 bytes but only got 0.
  warnings.warn(str(msg))
```

Also, some picture is unreadable during my training time. After I deleted those picture, my module can run nomally, but I am not sure whether it is my program's problem.