Assignment 4 CNN

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Basic

1. how to design your own model architecture

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Model: "sequential"
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 Layer (type)                Output Shape              Param #
=================================================================
 conv2d (Conv2D)             (None, 126, 126, 32)      320

 max_pooling2d (MaxPooling2D  (None, 63, 63, 32)       0
 )

 conv2d_1 (Conv2D)           (None, 61, 61, 64)        18496

 max_pooling2d_1 (MaxPooling  (None, 30, 30, 64)       0
 2D)

 conv2d_2 (Conv2D)           (None, 28, 28, 64)        36928

 flatten (Flatten)           (None, 50176)             0

 dense (Dense)               (None, 64)                3211328

 dropout (Dropout)           (None, 64)                0

 dense_1 (Dense)             (None, 1)                 65

=================================================================
Total params: 3,267,137
Trainable params: 3,267,137
Non-trainable params: 0
_________________________________________________________________
```

   Since the pictures and label is like mnist data training, so the model is based on the CNN network.

   First, use convolution and max pooling to extract features, and we use flatten to connect to dense layer. And use drop out to avoid overfit.

2. how to choose hyperparameters

   I didn’t choose the hyperparameter on purpose, except for the activation of the last layer (Dense), since sigmoid is more suitable for binary classification problem.

3. difficulties encountered

   Choose of hyperparameter, the training and tuning hyperparameter consumes the time a lot.

Advanced

1. how to design your own model architecture

   same as basic

2. how to choose hyperparameters

   same as basic

3. difficulties encountered

   same as basic