

CNN手寫數字辨識

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因應程式版本更動

- 修正呼叫方式

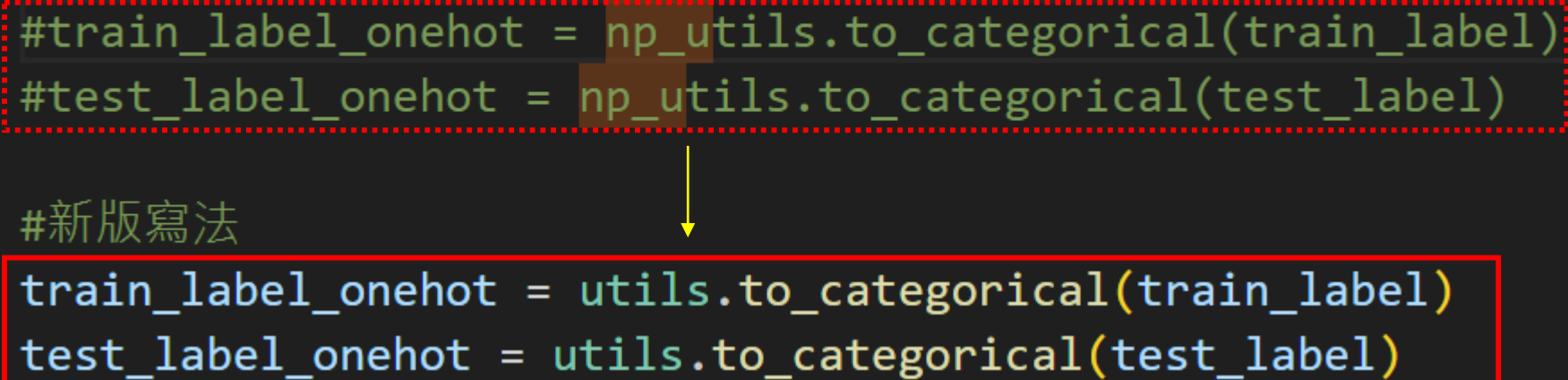
```
from keras import utils  
  
utils.to_categorical(...)
```

修改地方#1

```
1 # CNN MNIST OK
2 import numpy as np
3
4 # 舊版
5 #from keras.utils import np_utils
6
7 # 新版寫法
8 from keras import utils
9
10 np.random.seed(10)
11 from keras.datasets import mnist
12 import matplotlib.pyplot as plt
13 from keras.models import Sequential
14 from keras.layers import Conv2D,MaxPooling2D,Dropout,Flatten,Dense
15
```

修改地方#2

```
53 #label 轉換為 One-Hot Encoding 編碼
54 #舊版寫法
55 #train_label_onehot = np_utils.to_categorical(train_label)
56 #test_label_onehot = np_utils.to_categorical(test_label)
57
58 #新版寫法
59 train_label_onehot = utils.to_categorical(train_label)
60 test_label_onehot = utils.to_categorical(test_label)
```



正確率

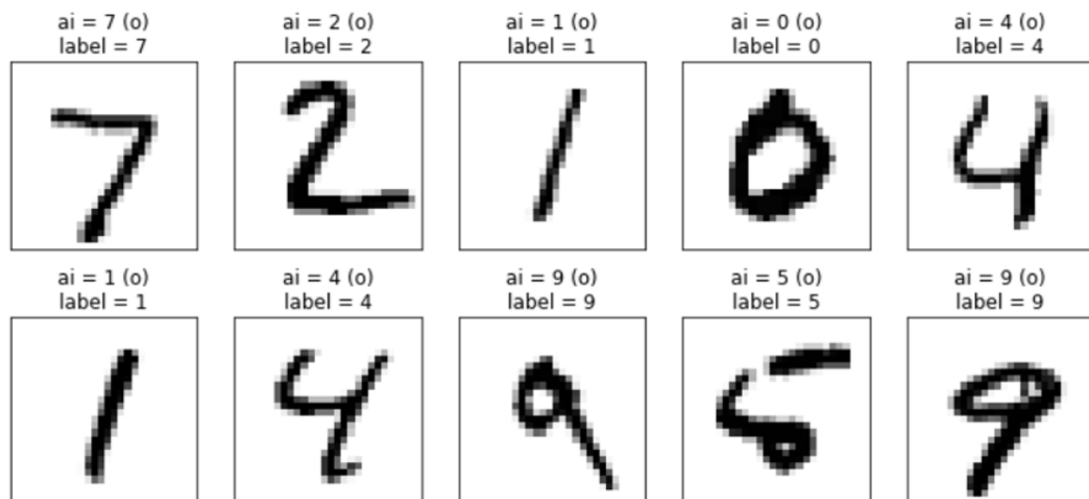
- 正確率高達99.9

```
Epoch 8/10
240/240 - 7s - loss: 0.0330 - accuracy: 0.9891 - val_loss: 0.0359 - val_accuracy: 0.9895 - 7s/epoch -
28ms/step
Epoch 9/10
240/240 - 7s - loss: 0.0282 - accuracy: 0.9909 - val_loss: 0.0404 - val_accuracy: 0.9879 - 7s/epoch -
29ms/step
Epoch 10/10
240/240 - 7s - loss: 0.0261 - accuracy: 0.9918 - val_loss: 0.0342 - val_accuracy: 0.9899 - 7s/epoch -
29ms/step
313/313 [=====] - 1s 3ms/step - loss: 0.0270 - accuracy: 0.9901
準確率= 0.9901000261306763
313/313 [=====] - 1s 2ms/step
PS C:\Users\eric\Python Work\姿勢辨識>
```

執行結果比較

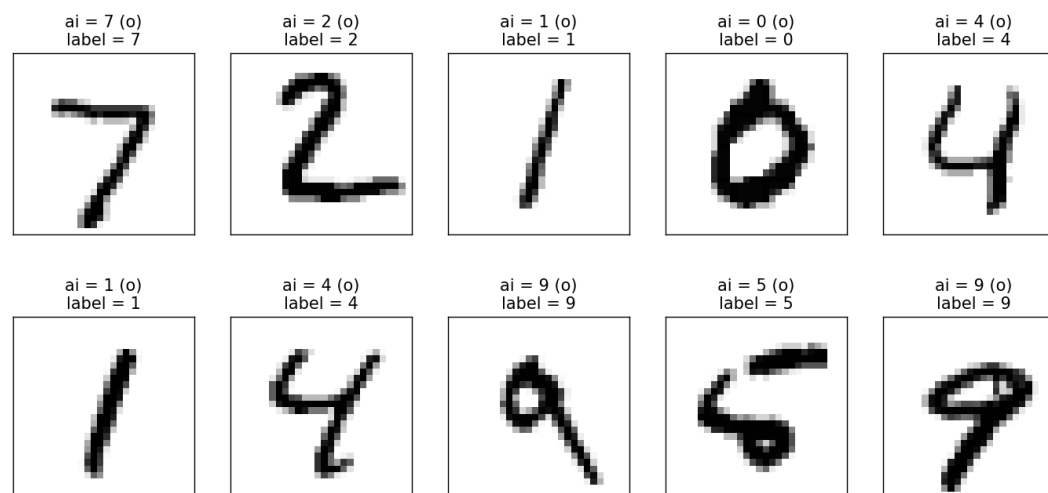
MLP

- 正確率97%



CNN

- 正確率99%



執行結果比較

MLP

- 正確率97%
- 加入第二層隱藏層128節點
- 加入Dropout 0.2
- 正確率 98.2%

CNN

- 正確率99%

