Handwritten Digits Classification

Cnn (99):
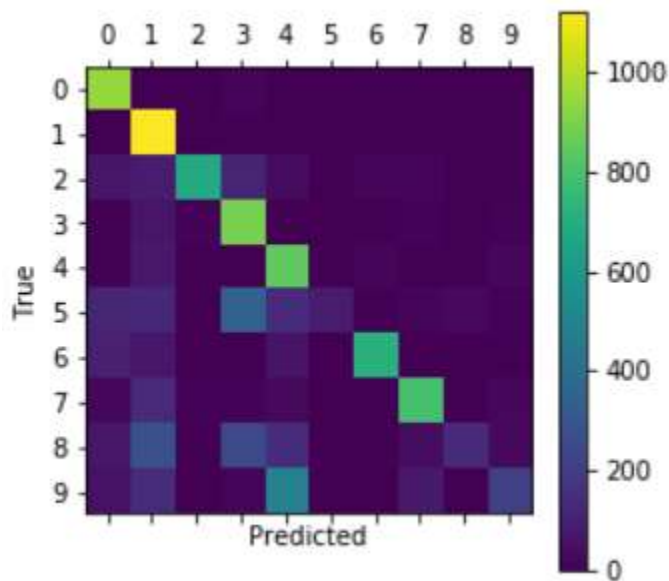
Confusion matrix:

```
[[ 952     3     0    14     3     0     7     0     1     0]
 [   0  1124     1     6     2     0     2     0     0     0]
 [  67    85   688   116    38     0    17    20     0     1]
 [   7    67    12   895     6     0     0    12     1    10]
 [   6    76     4     0   851     0    20     3     0    22]
 [ 120   123     3   356   145    88     5    14    29     9]
 [ 105    72     4     4    58     0   715     0     0     0]
 [  25   133    11    10    27     0     0   798     0    24]
 [  73   285     6   249   145     0     7    43   137    29]
 [  54   141     3    16   500     0     3    80     0   212]]
```

Plot:

Time usage: 0:00:57

Accuracy on Test-Set: 64.6% (6460 / 10000)

CNN (900):

Confusion Matrix:

```
[[ 956    0    2    0    0    5   11    1    5    0]
 [   0 1100    3    3    1    1    4    0   23    0]
 [  10    1  936   10   13    5   16   12   28    1]
 [   5    3   16  895    0   39    2   19   22    9]
 [   0    1    4    0  905    1   19    1    6   45]
 [   7    1    0   10    7  836   17    1    7    6]
 [   9    4    2    1    8   18  914    0    2    0]
 [   0    8   28    4    4    3    0  935    5   41]
 [   5    3    4   13    9   23   16   10  880   11]
 [   7    5    7   10   27   11    1   19    6  916]]
```
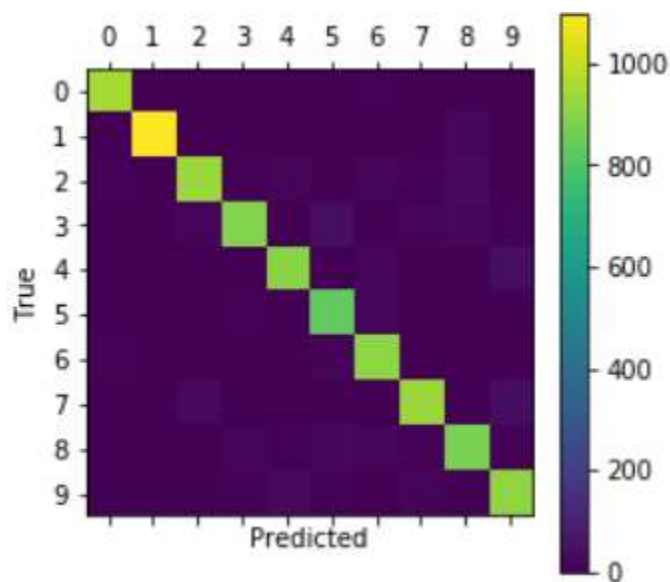
Plot:

Time usage: 0:09:19

Accuracy on Test-Set: 92.7% (9273 / 10000)

CNN(9000):

Confusion matrix:

```
[[ 976    0    0    0    0    0    1    1    2    0]
 [   0 1131    1    0    0    0    1    1    1    0]
 [   7    3 1010    0    1    0    0    5    6    0]
 [   2    0    0 1000    0    3    0    3    2    0]
 [   0    0    0    0  979    0    0    0    0    3]
 [   2    0    0    7    0  873    3    2    2    3]
 [   8    3    0    0    4    2  939    0    2    0]
 [   0    1    4    1    0    0    0 1020    1    1]
 [   7    0    2    0    1    0    1    2  959    2]
 [   5    6    0    2    7    2    0    5    2  980]]
```
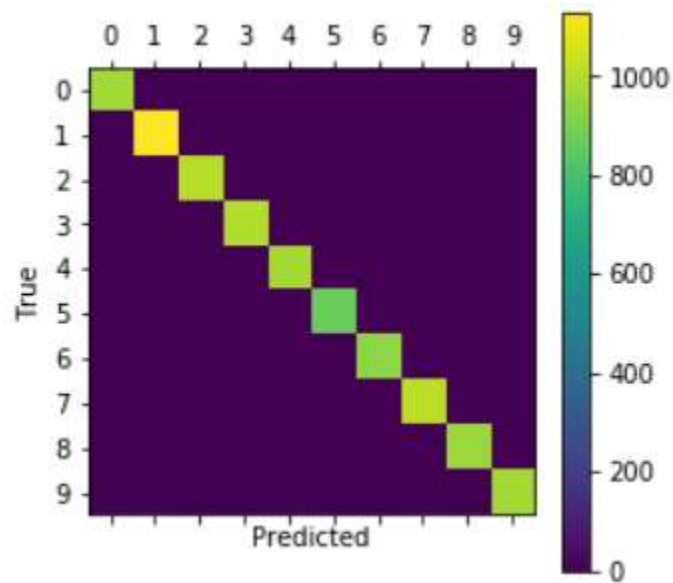
Plot:

Time usage: 0:59:45

Accuracy on Test-Set: 98.7% (9867 / 10000)