DRAWING AND RECOGNIZING CHINESE CHARACTERS WITH RNN

陳謙慶

4105053118

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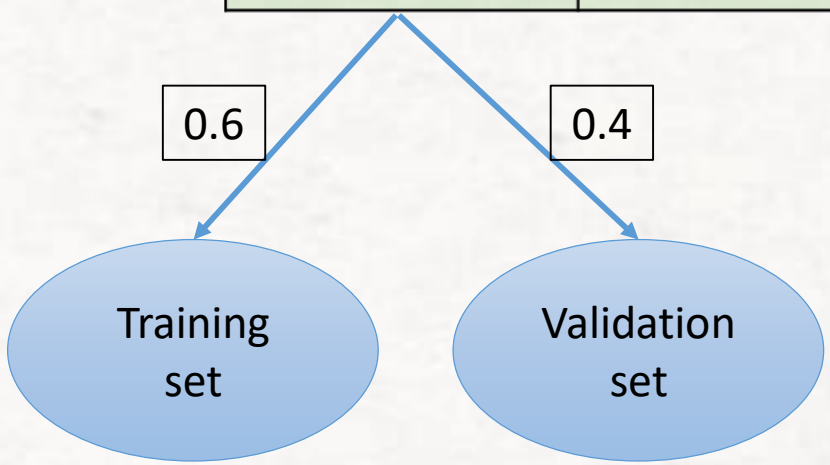
Experiment Result

- Dataset

Training set	Testing set
16970	4199

- Batch size = 200
- Iteration = 15 times



Experiment Result

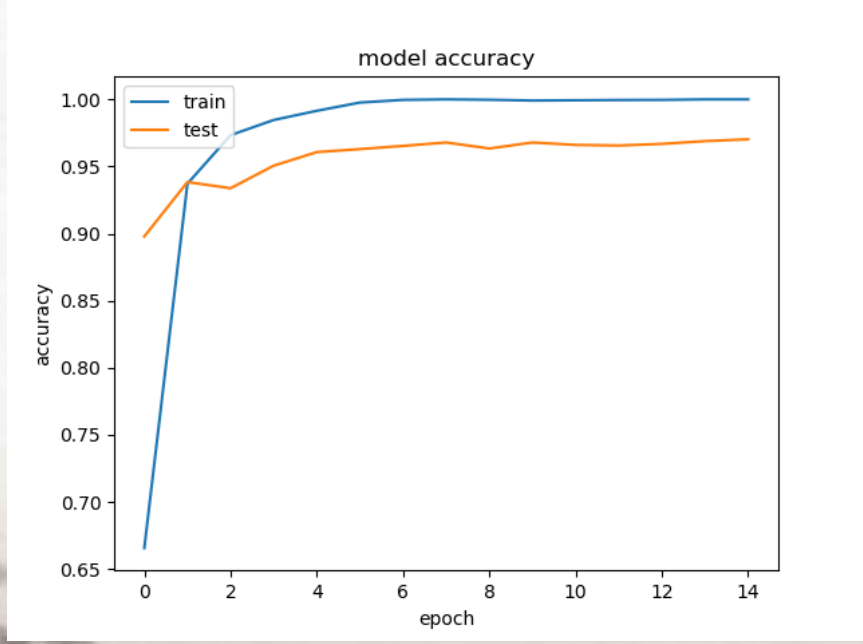
- Multiple layers RNN

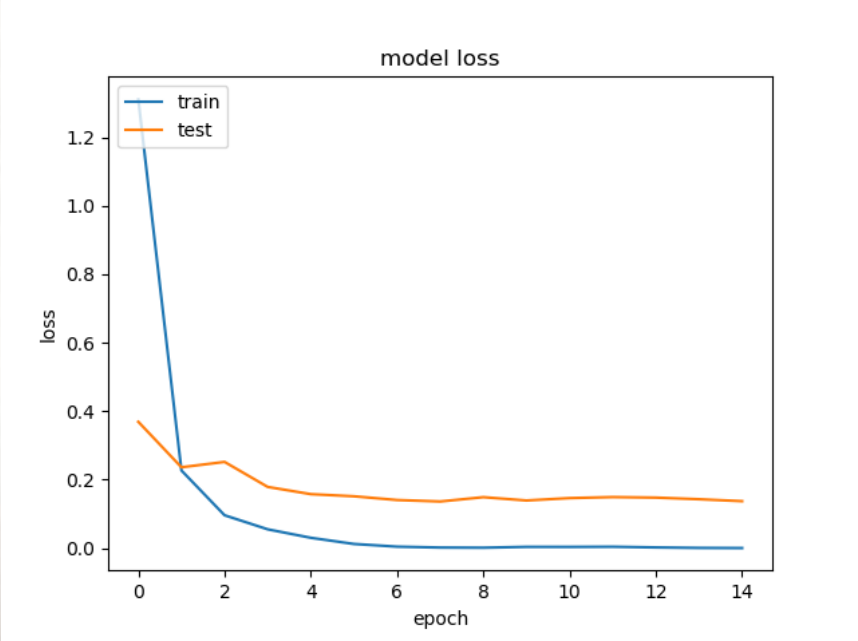
Recurrent Type	Architecture	Train Time	Train Acc.	Validation Acc.	Test Acc.
LSTM	[300]	33 mins	1.00	95.95%	95.28%
GRU	[300]	23 mins	0.99	95.56%	94.78%
LSTM	[300, 200]	1 hr 53 mins	0.99	95.00%	93.99%
GRU	[300, 200]	1 hr 16 mins	1.00	96.66%	95.76%
LSTM	[300, 200, 100]	2 hr 9 mins	0.99	95.76%	94.90%
GRU	[300, 200, 100]	1 hr 25 mins	1.00	97.02%	96.47%

Experiment Result

- Multiple layers RNN

Recurrent Type	Architecture	Train Time	Train Acc.	Validation Acc.	Test Acc.
GRU	[300, 200, 100]	1 hr 25 mins	1.00	97.02%	96.47%





Experiment Result

- Sub-sequences generated by Random Dropout (with probability 0.3)

	Full	1	5	10	20
GRU	96.47%	95.53%	96.60%	97.03%	97.11%

Conclusion

- The result between GRU and LSTM is very close, but LSTM must cost more than GRU.
- The deeper RNN has the better result.
- Sub-sequences give us more training data, and it has the better result.

Generative character