MNIST Training

Document Author

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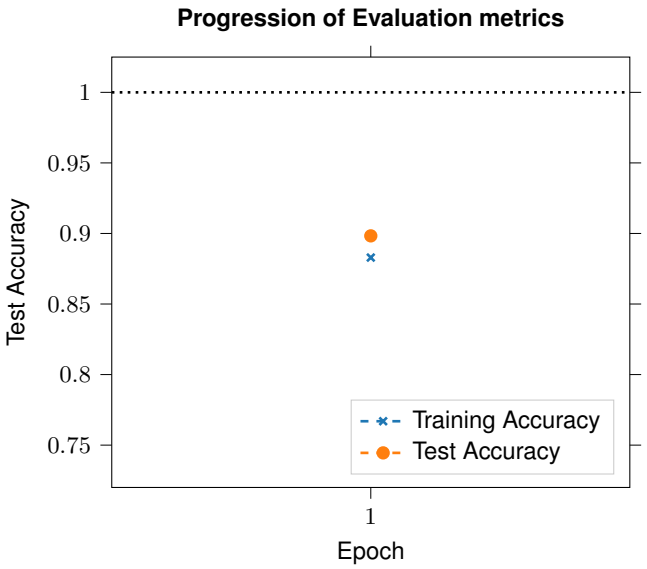
1 Summary

№	Model name	Pretrained	#Parameters	#Epochs	Batch size	Test Acc.	Training Acc.
1	MLP2layers		669 706	1	128	89.83 %	88.29 %

2 Training reports

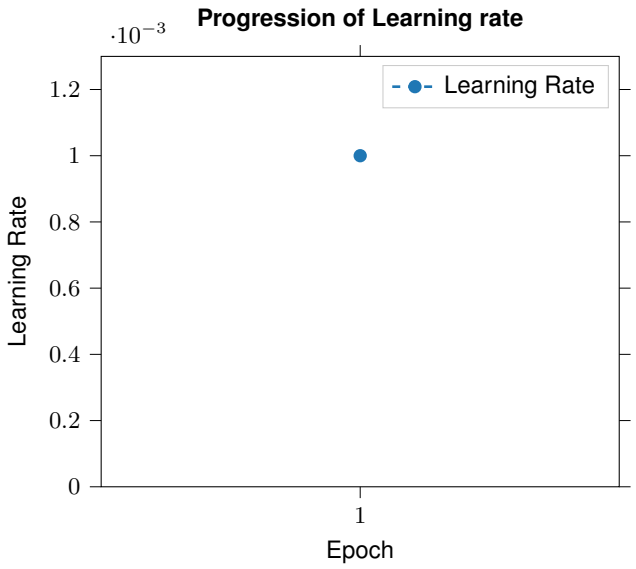
2.1 Model 1: MLP2layers

Training history See Figure 1.



(a) Accuracy learning process for model 1.

(b) Loss learning process for model 1.



(c) Learning rate per epoch for model 1.

Figure 1: Training and evaluation metrics for model 1.

Dataset

Name MNIST

Train-Test-Dev split: *Training set:* 60000, *Test set:* 10000, *Dev set:* 0,

Image size [28, 28]

Training

Number of epochs 1

Optimizer adam

Learning Rate	0.0010000000474974513
Beta 1	0.8999999761581421
Beta 2	0.9990000128746033
Decay	0.0
Epsilon	1e-07
Amsgrad	False

Loss Categorical crossentropy

Batch size 128

Shuffle Yes

Training time 5 sec

Platform

Weights exported to path weights\MLP2layers_1ep_MNIST.h5

Device used GPU (GeForce GTX 1060 6GB)

CPU Intel(R) Xeon(R) CPU E3-1245 v5 @ 3.50GHz, X86_64

Python Version 3.7.2.final.0 (64 bit)

Keras Version 2.2.5 (Backend: tensorflow)

Tensorflow Version 1.14.0

Timestamp 25.09.2019 at 15:16

3 Model Architectures

3.1 MLP2layers

Used in №: 1

Model summary:

№	Layer (Type)	Output shape	Config	#Parameters	Inbound layers
0	input_1 (InputLayer)	(28, 28, 1)		0	
1	flatten_1 (Flatten)	(784,)	Parameters of layers of type Flatten not implemented.	0	input_1
2	dense_1 (Dense)	(512,)	Parameters of layers of type Dense not implemented.	401 920	flatten_1
3	dropout_1 (Dropout)	(512,)	Parameters of layers of type Dropout not implemented.	0	dense_1
4	dense_2 (Dense)	(512,)	Parameters of layers of type Dense not implemented.	262 656	dropout_1
5	dropout_2 (Dropout)	(512,)	Parameters of layers of type Dropout not implemented.	0	dense_2
6	dense_3 (Dense)	(10,)	Parameters of layers of type Dense not implemented.	5130	dropout_2