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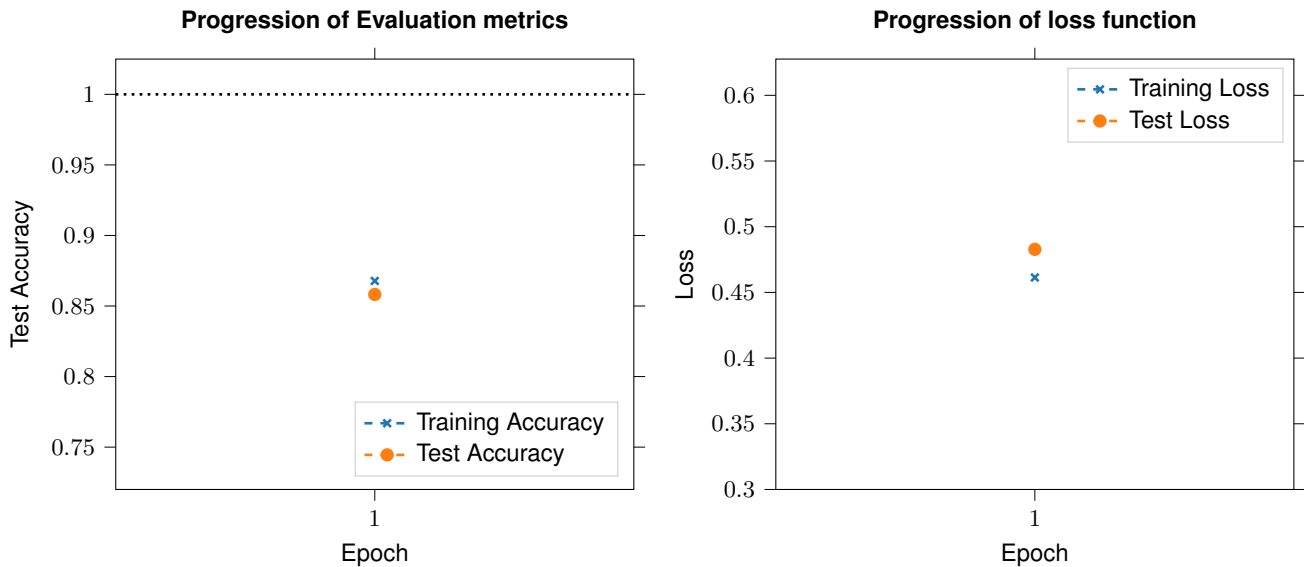
1 Summary

Nº	Model name	Pretrained	#Parameters	#Epochs	Batch size	Test Acc.	Training Acc.
1	MLP2layers		669 706	1	128	85.82 %	86.78 %
2	MLP2layers		669 706	1	128	86.99 %	86.67 %
3	MLP2layers		669 706	1	128	90.2 %	86.71 %

## 2 Training reports

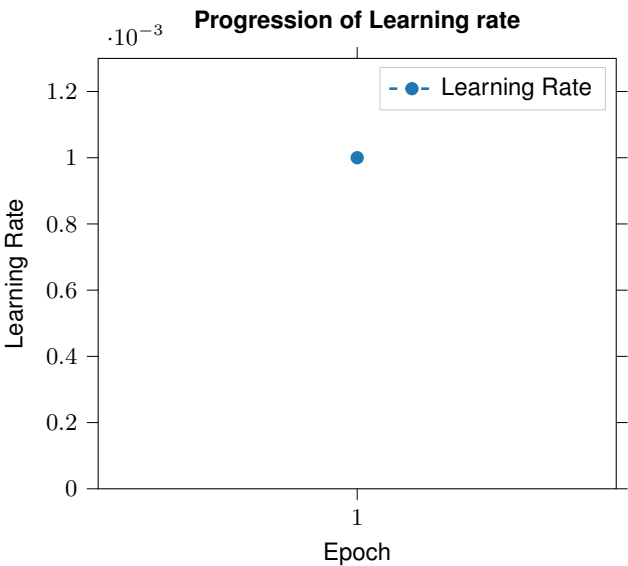
### 2.1 Model 1: MLP2layers

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** Rmsprop  
0.01

**Learning rate** 0.001

**Loss** Categorical crossentropy

**Batch size** 128

**Shuffle** Yes

**Training time** 4 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)

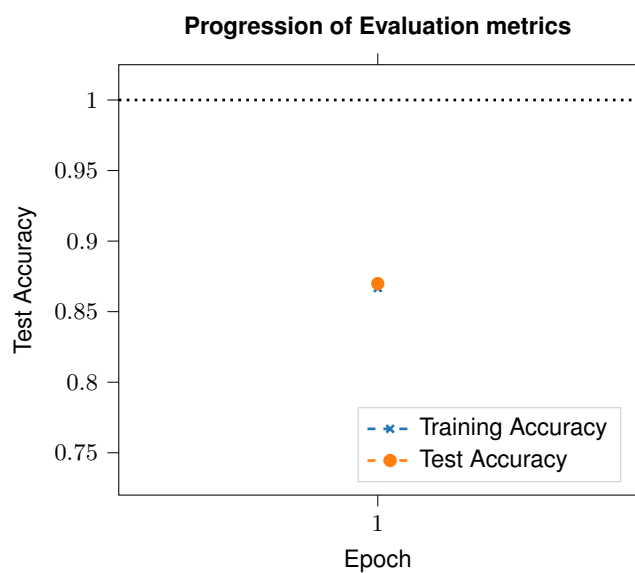
**Keras Version** 2.2.5 (Backend: tensorflow)

**Tensorflow Version** 1.14.0

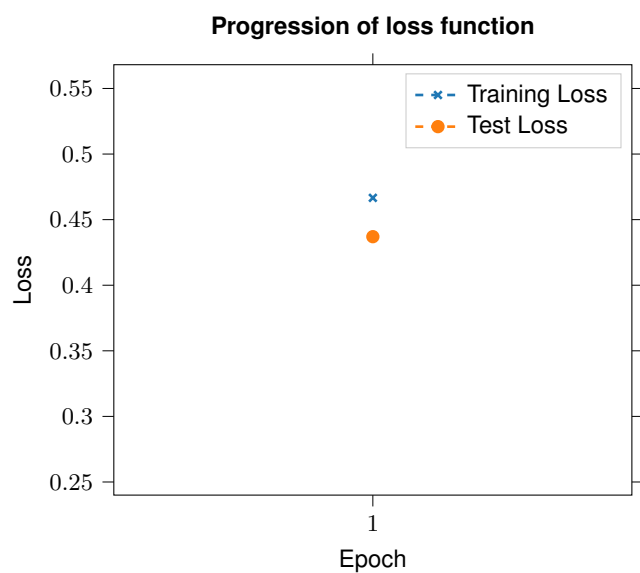
**Timestamp** 25.09.2019 at 13:50

## 2.2 Model 2: MLP2layers

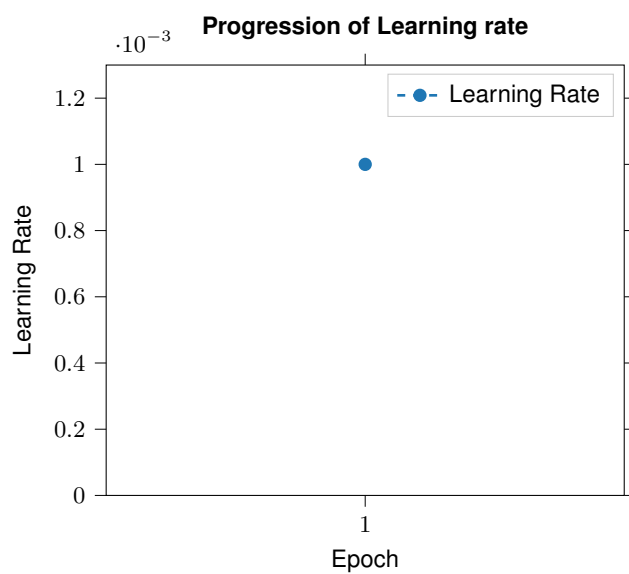
**Training history** See Figure 2.



(a) Accuracy learning process for model 2.



(b) Loss learning process for model 2.



(c) Learning rate per epoch for model 2.

Figure 2: Training and evaluation metrics for model 2.

## 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** Rmsprop  
0.01

**Learning rate** 0.001

**Loss** Categorical crossentropy

**Batch size** 128

**Shuffle** Yes

**Training time** 4 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)

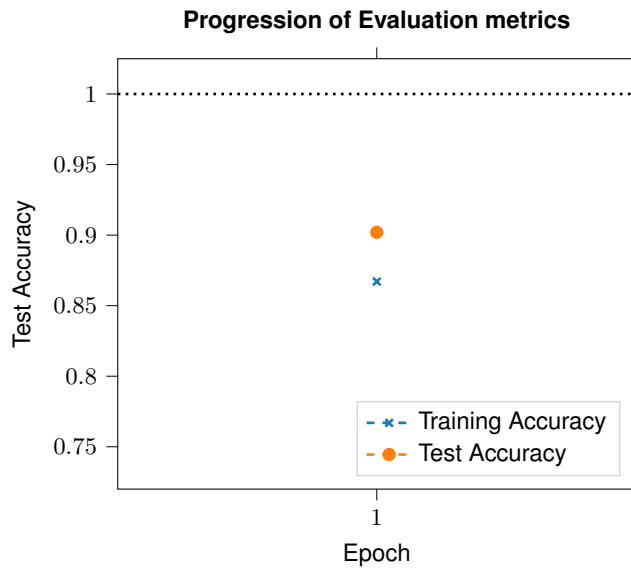
**Keras Version** 2.2.5 (Backend: tensorflow)

**Tensorflow Version** 1.14.0

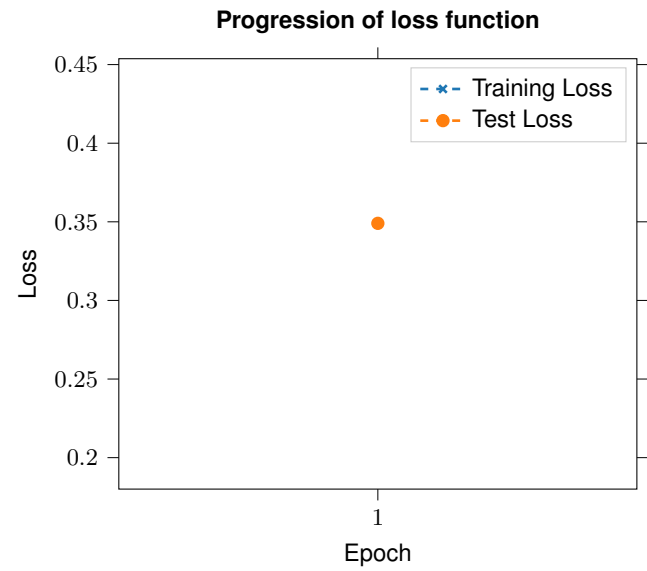
**Timestamp** 25.09.2019 at 13:52

## **2.3 Model 3: MLP2layers**

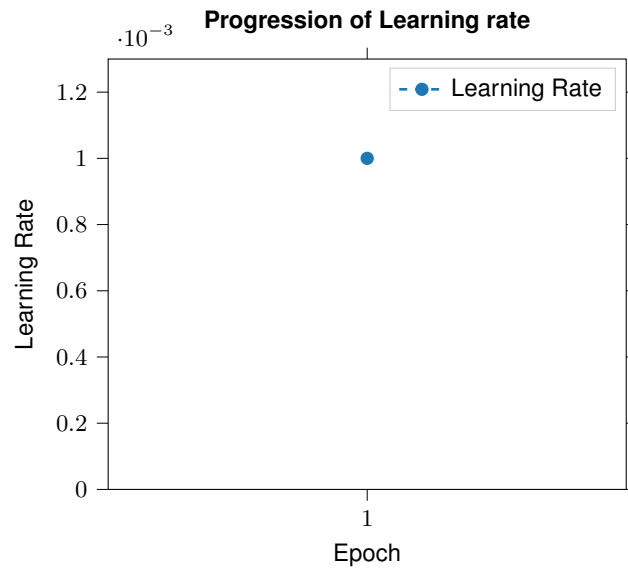
**Training history** See Figure 3.



(a) Accuracy learning process for model 3.



(b) Loss learning process for model 3.



(c) Learning rate per epoch for model 3.

Figure 3: Training and evaluation metrics for model 3.

## 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** Rmsprop  
0.01

**Learning rate** 0.001

**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 13:53

## 3 Model Architectures

### 3.1 MLP2layers

Used in №: 1, 2, 3

Model summary:

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