MNIST

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Introduction

O uso de cnn tornou-se mais comum nos últimos anos no campo da visualização computacional. Sua principal característica reside na geração automática de filtros, além de sua detecção automática de padrões.

Predictions

Como pode ser visto no anexo de demonstração nesta pasta, a precisão da predição depende muito do modelo usado.

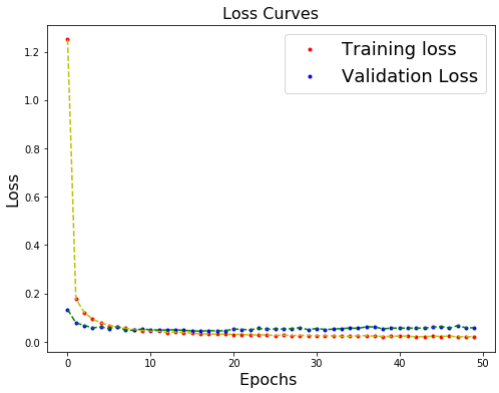
Se usarmos o modelo overfitting (v0), as previsões têm alguns erros, mas se usarmos o modelo mais “plástico” (v4), as previsões se tornam altamente precisas, mesmo em alguns casos sem erros nas previsões.

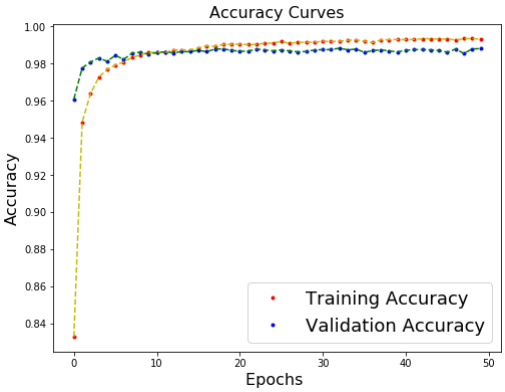
Models Used

v1

- **epochs** : *50*
- **batch_size** : *500*
- **optimizer** : *adadelta*
- **loss** : *categorical_crossentropy*
- **metrics** : *accuracy*

	Neurons/Size	Filter Size	Activation	Dropout	Max-Pooling	Layer Type
0	28x28x3	-	-	-	-	Input Layer
1	32	3x3	Relu	0.0	-	2D Convolutional
2	28	2x2	SeLu	0.2	-	2D Convolutional
3	-	-	-	-	2x2	Pooling
4	Flatten	-	-	-	-	Fully Connected
5	10	-	SoftMax	0.0	-	Output Layer



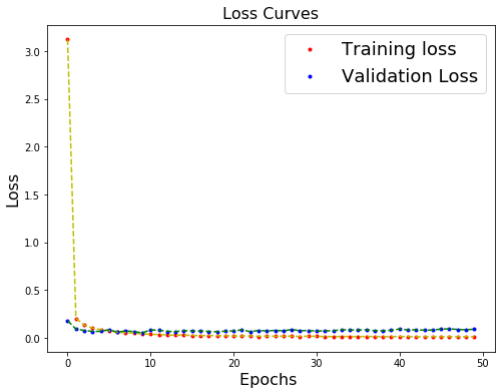


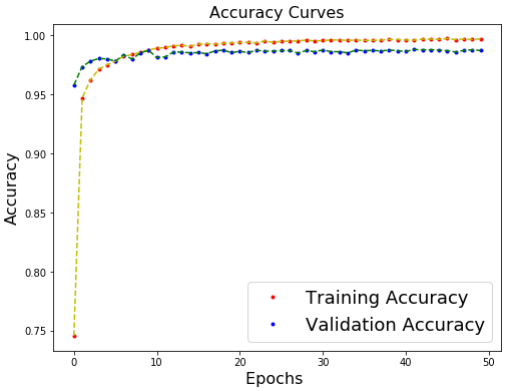
v2

- **epochs** : *50*
- **batch_size** : *1000*
- **optimizer** : *adadelta*
- **loss** : *categorical_crossentropy*
- **metrics** : *accuracy*

	Neurons/Size	Filter Size	Activation	Dropout	Max-Pooling	Layer Type

	Neurons/Size	Filter Size	Activation	Dropout	Max-Pooling	Layer Type
0	28x28x3	-	-	-	-	Input Layer
1	32	3x3	Relu	0.0	-	2D Convolutional
2	28	2x2	SeLu	0.2	-	2D Convolutional
3	-	-	-	-	2x2	Pooling
4	Flatten	-	-	-	-	Fully Connected
5	10	-	SoftMax	0.0	-	Output Layer

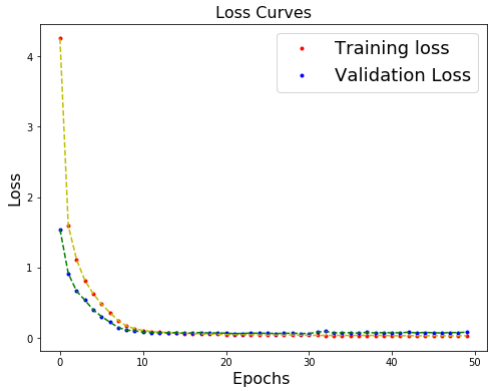


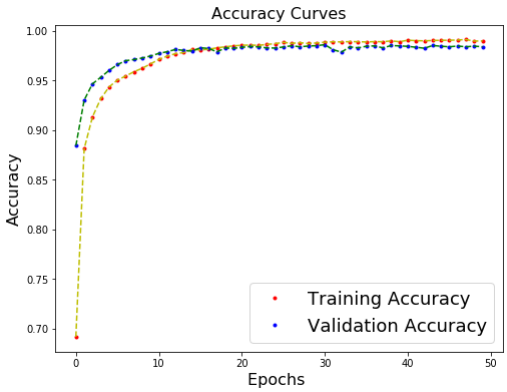


v3

- **epochs** : *50*
- **batch_size** : *1000*
- **optimizer** : *adadelta*
- **loss** : *categorical_crossentropy*
- **metrics** : *accuracy*

	Neurons/Size	Filter Size	Activation	Dropout	Max-Pooling	Layer Type
0	28x28x3	-	-	-	-	Input Layer
1	20	2x2	Relu	0.0	-	2D Convolutional
2	10	2x2	SeLu	0.2	-	2D Convolutional
3	-	-	-	-	2x2	Pooling
4	Flatten	-	-	-	-	Fully Connected
5	10	-	SoftMax	0.0	-	Output Layer

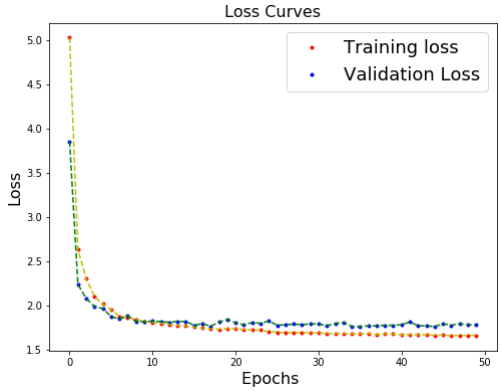


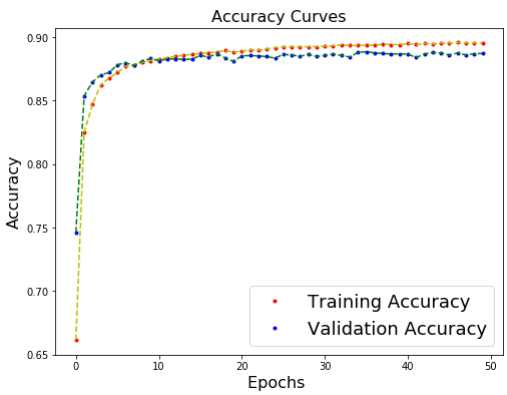


v4

- **epochs** : *50*
- **batch_size** : *1000*
- **optimizer** : *adadelta*
- **loss** : *categorical_crossentropy*
- **metrics** : *accuracy*

	Neurons/Size	Filter Size	Activation	Dropout	Max-Pooling	Layer Type
0	28x28x3	-	-	-	-	Input Layer
1	25	2x2	Relu	0.0	-	2D Convolutional
2	20	2x2	ReLu	0.1	-	2D Convolutional
3	-	-	-	-	2x2	Pooling
4	Flatten	-	-	-	-	Fully Connected
5	10	-	SoftMax	0.0	-	Output Layer





v0 (Overfitting)

- **epochs** : *50*
- **batch_size** : *1000*
- **optimizer** : *adadelta*
- **loss** : *categorical_crossentropy*
- **metrics** : *accuracy*

	Neurons/Size	Filter Size	Activation	Dropout	Max-Pooling	Layer Type
0	28x28x3	-	-	-	-	Input Layer
1	36	3x3	Relu	0.0	-	2D Convolutional
2	36	2x2	SeLu	0.2	-	2D Convolutional
3	-	-	-	-	2x2	Pooling
4	48	2x2	SeLu	0.0	-	2D Convolutional
5	48	4x4	ReLU	0.3	-	2D Convolutional
6	-	-	-	-	2x2	Pooling
7	500	-	SeLu	0.8	-	Fully Connected
8	300	-	ReLU	0.4	-	Fully Connected
9	10	-	SoftMax	0.0	-	Output Layer