NEURALA NÄTVERK

Assembly Instruction K + TensorFlow
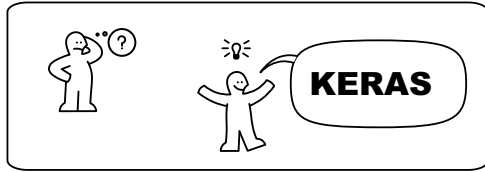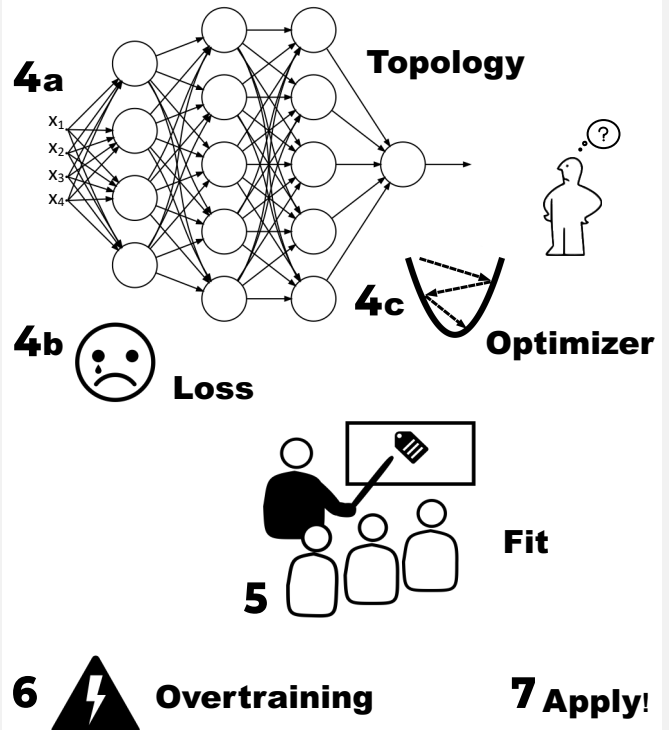

KERAS

1 Features

2a Train Test

2b Normalize

3 Metric

4a Topology

4b Loss

4c Optimizer

5 Fit

6 Overtraining

7 Apply!

1x python™

1x K + TensorFlow

1x
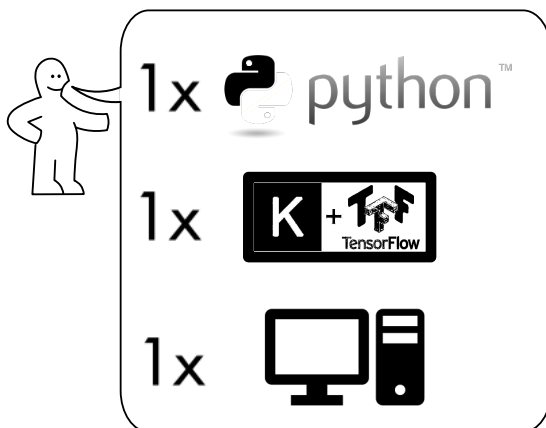
2x **ReLU**

1x **Softmax**

1x **X-entropy**

1x **Adam**

```python
import tensorflow as tf
mnist = tf.keras.datasets.fashion_mnist

(x_train, y_train),(x_test, y_test) = mnist.load_data()
x_train, x_test = x_train / 255.0, x_test / 255.0

model = tf.keras.models.Sequential([
  tf.keras.layers.Flatten(input_shape=(28, 28)),
  tf.keras.layers.Dense(512, activation='relu'),
  tf.keras.layers.Dense(512, activation='relu'),
  tf.keras.layers.Dense(10, activation='softmax')
])
model.compile(optimizer='adam',
              loss='sparse_categorical_crossentropy',
              metrics=['accuracy'])

model.fit(x_train, y_train, epochs=5)
model.evaluate(x_test, y_test)
```

```python
import numpy as np
fiveImages = x_test[0:5]
predictions = model.predict(fiveImages)
predictions = np.argmax(predictions,axis=1)
import matplotlib.pyplot as plt
class_names = ['T-shirt/top', 'Trouser', 'Pullover',
               'Dress', 'Coat', 'Sandal', 'Shirt',
               'Sneaker', 'Bag', 'Ankle boot']
plt.figure(figsize=(10,10))
for i in range(5):
    plt.subplot(1,5,i+1)
    plt.xticks([])
    plt.yticks([])
    plt.grid(False)
    plt.imshow(fiveImages[i], cmap=plt.cm.binary)
    plt.xlabel(class_names[predictions[i]])
plt.show()
```


Ankle boot | Pullover | Trouser | Trouser | Shirt