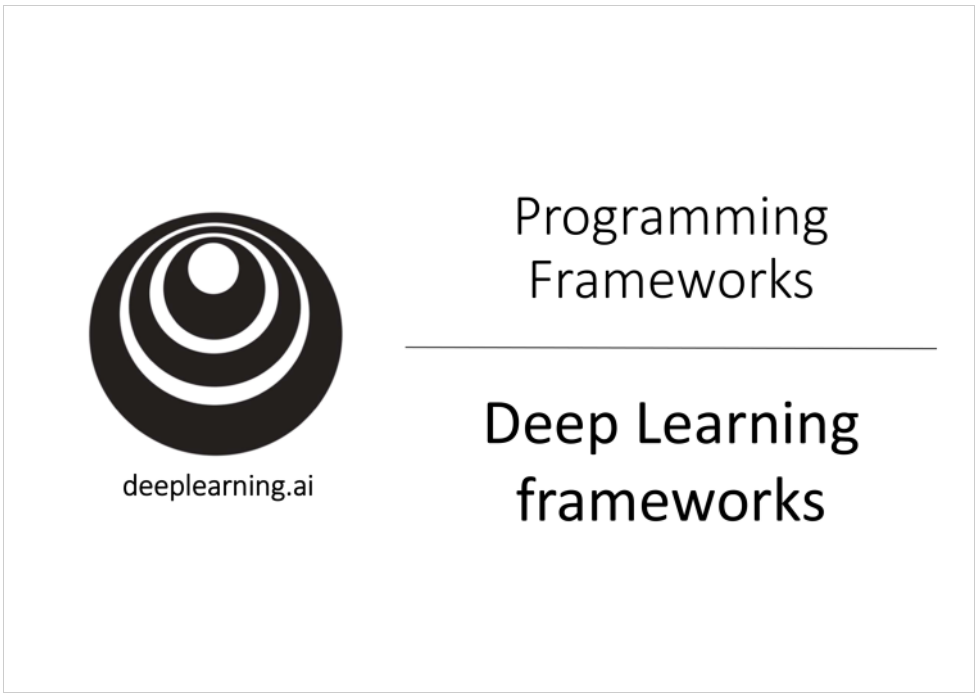
Deep learning frameworks

Monday, June 4, 2018 11:53 PM

dlframework1



Deep learning frameworks

- Caffe/Caffe2
- CNTK
- DL4J
- Keras
- Lasagne
- mxnet
- PaddlePaddle
- TensorFlow
- Theano
- Torch

the criteria in choosing frameworks.

Choosing deep learning frameworks
- Ease of programming (development and deployment)
- Running speed
- Truly open (open source with good governance)

how much you trust the framework will remain open source.

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tensorflow

deeplearning.ai

Programming Frameworks

TensorFlow

Motivating problem

$J(w) = w^2 - 10w + 25$

$(w-5)^2$

$w = 5$

$J(w, b)$

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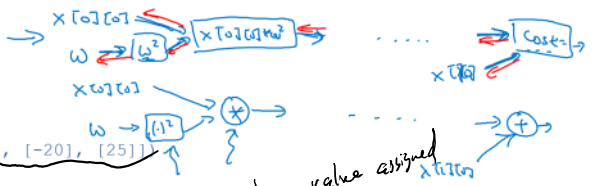
Code example



```
import numpy as np
import tensorflow as tf

coefficients = np.array([[1], [-20], [25]])

w = tf.Variable([0],dtype=tf.float32)
x = tf.placeholder(tf.float32, [3,1])
cost = x[0][0]*w**2 + x[1][0]*w + x[2][0]     # (w-5)**2
train = tf.train.GradientDescentOptimizer(0.01).minimize(cost)
init = tf.global_variables_initializer()

session = tf.Session()
session.run(init)
print(session.run(w))

with tf.Session() as session:
    session.run(init)
    print(session.run(w))

for i in range(1000):
    session.run(train, feed_dict={x:coefficients})
print(session.run(w))
```

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