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SIOR

로 봇 학 회

2022년 05월 12일

AI

4 주 차

목차

딥러닝 기본 개념1 : XOR 문제

(Simple) XOR problem: linearly separable?
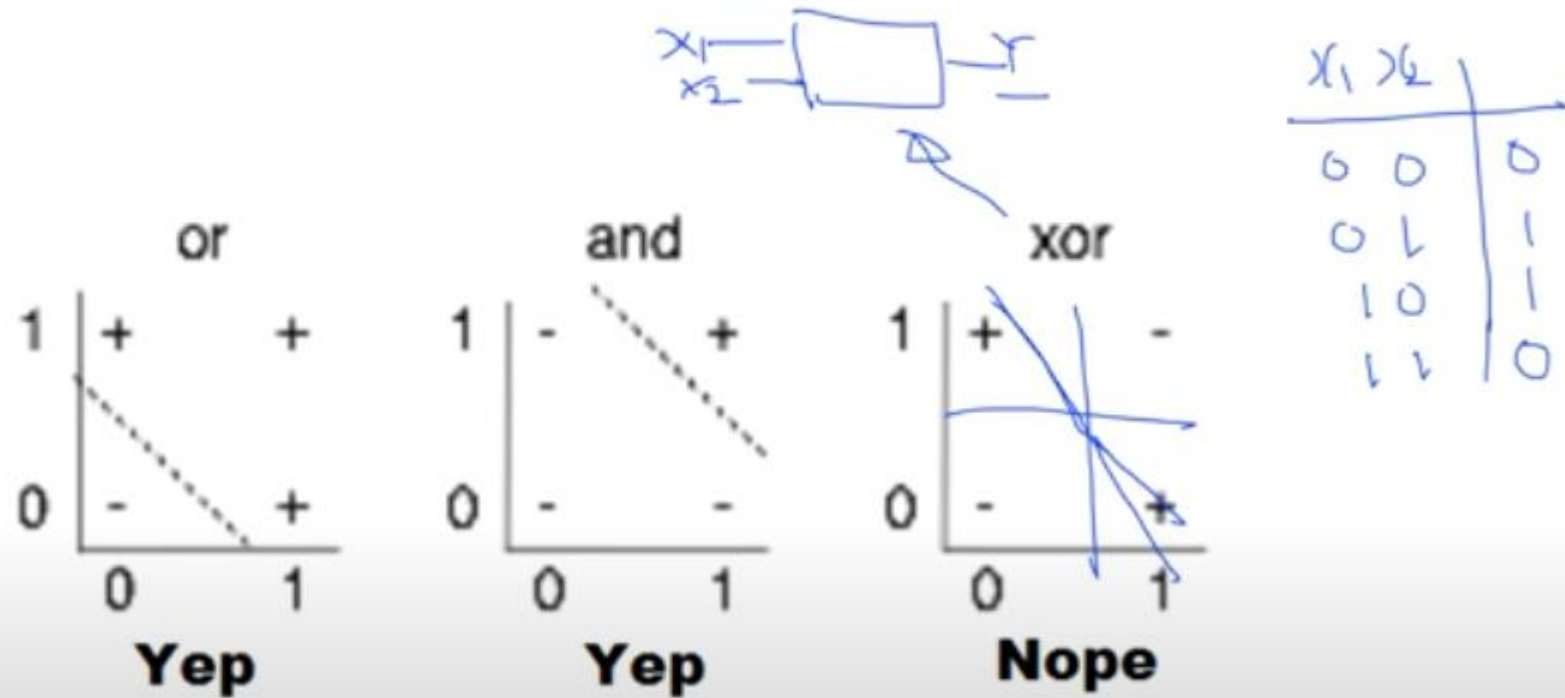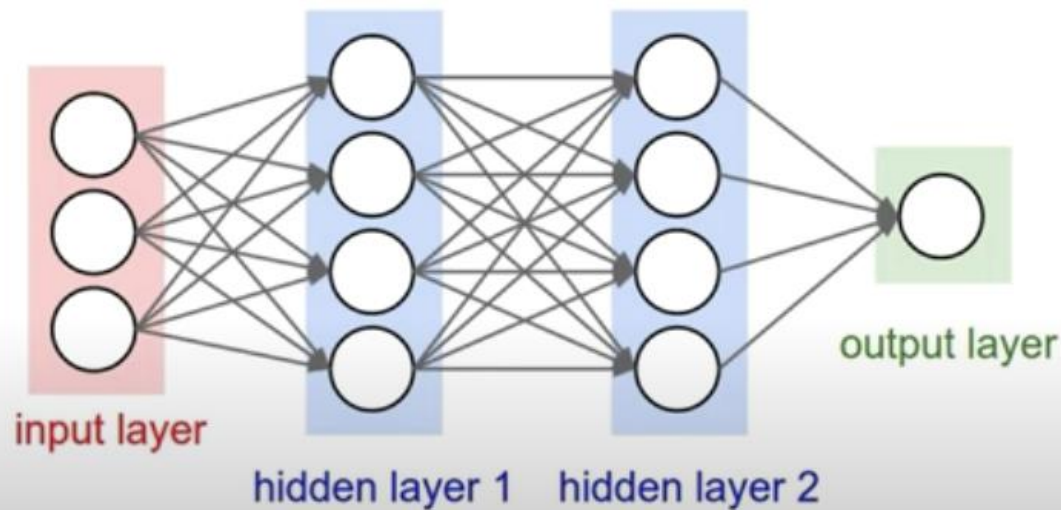
or — Yep

and — Yep

xor — Nope

딥러닝 기본 개념1 : XOR 문제

딥러닝 기본 개념2 : Back-propagation
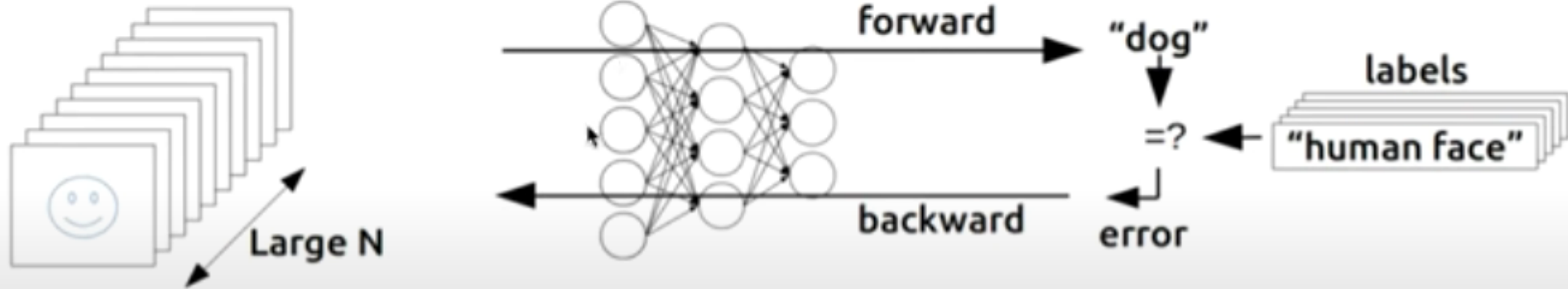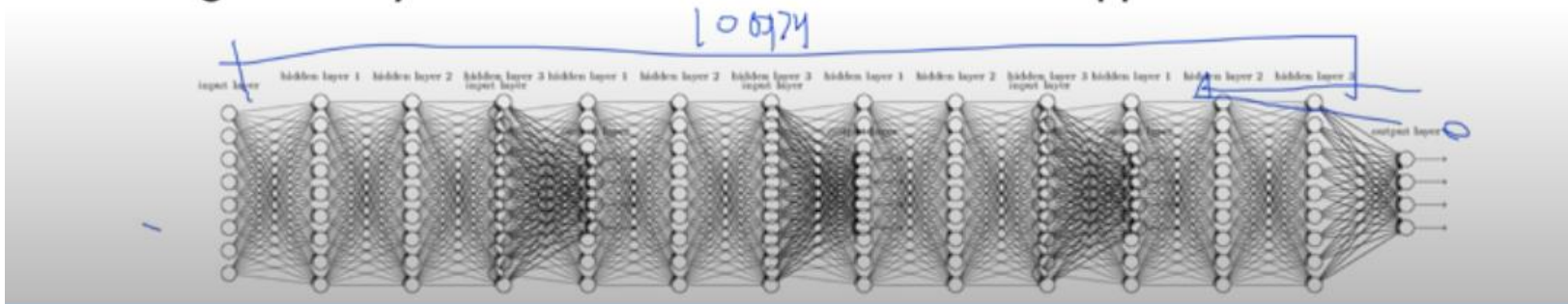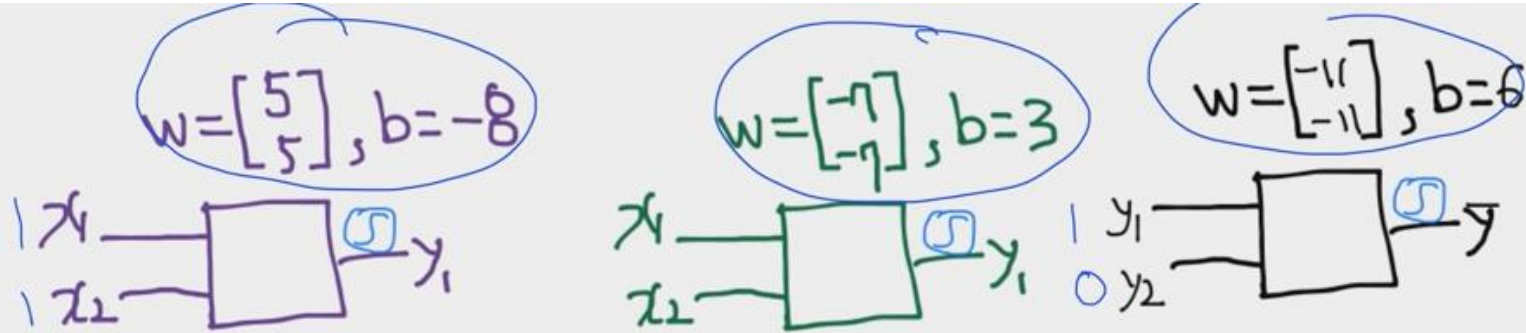
딥러닝 기본 개념2 : Back-propagation(단점)

A BIG problem

- Backpropagation just did not work well for normal neural nets with many layers

- Other rising machine learning algorithms: SVM, RandomForest, etc.

- 1995 "Comparison of Learning Algorithms For Handwritten Digit Recognition" by LeCun et al. found that this new approach worked better

XOR 문제 딥러닝으로 풀기 (1)

XOR 문제 딥러닝으로 풀기 (2)

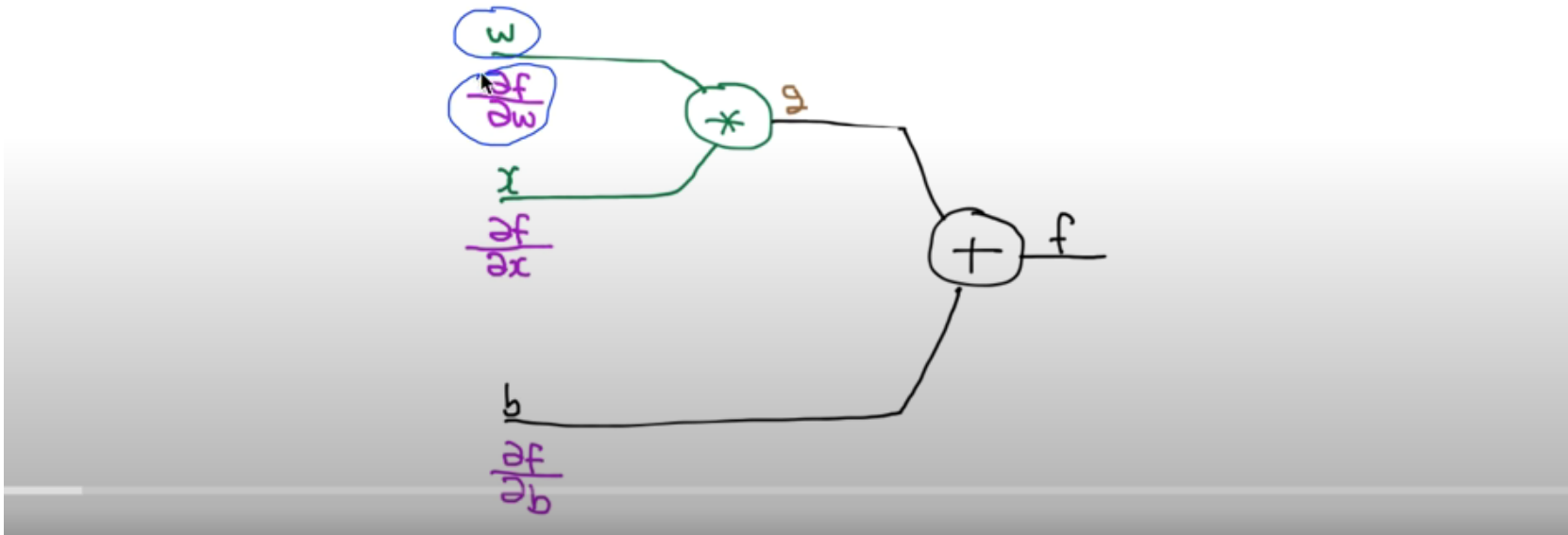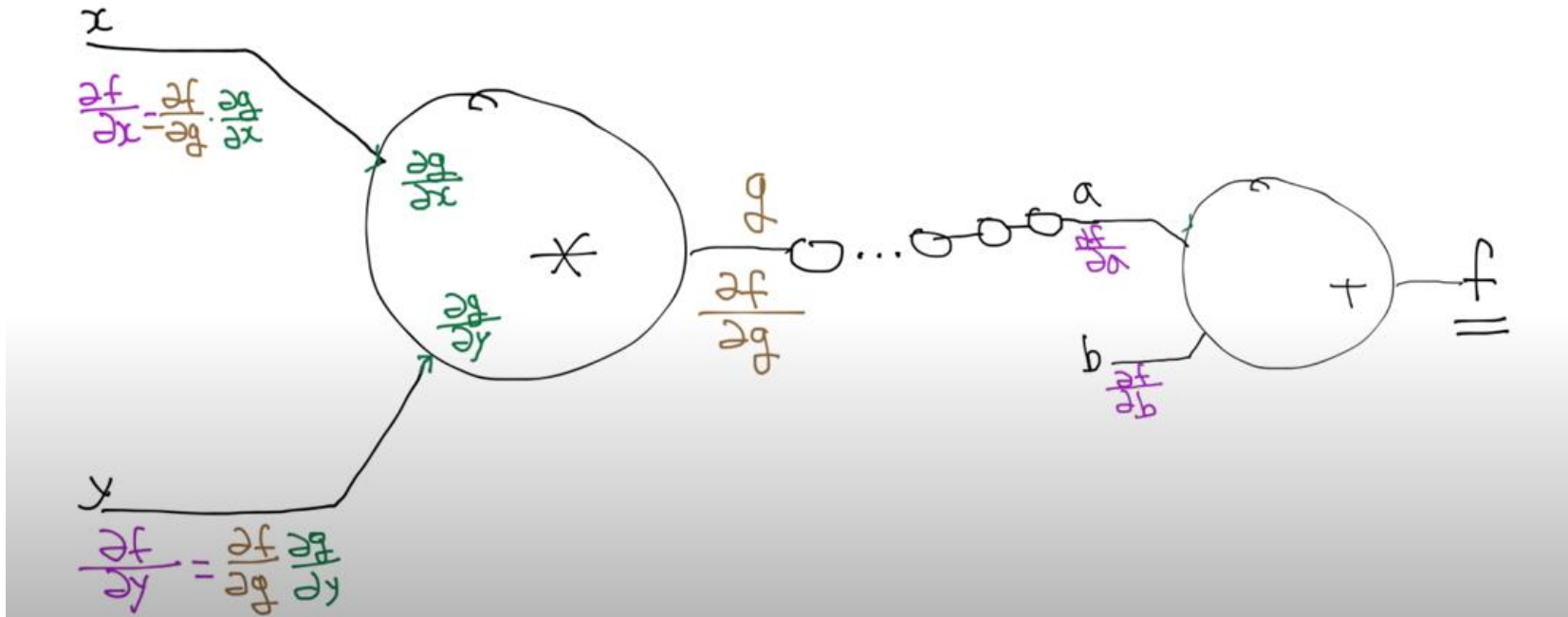# 딥네트워크 학습시키기(Back propagation) (1)

Back propagation (chain rule)

$$f = wx + b, \quad g = wx, \quad f = g + b$$

딥네트워크 학습시키기 (2)
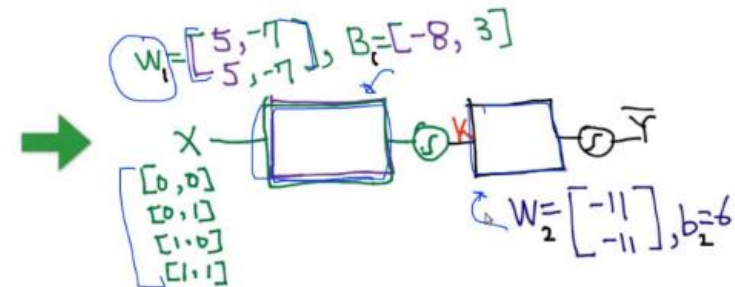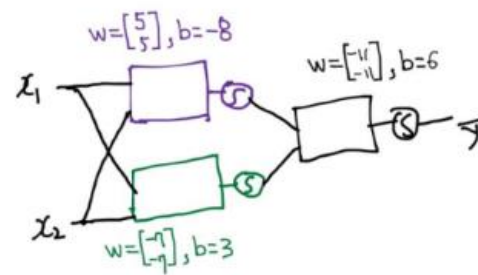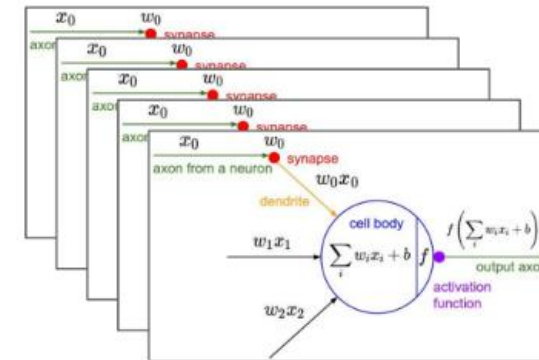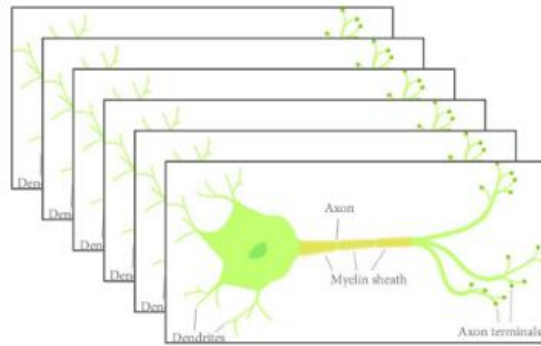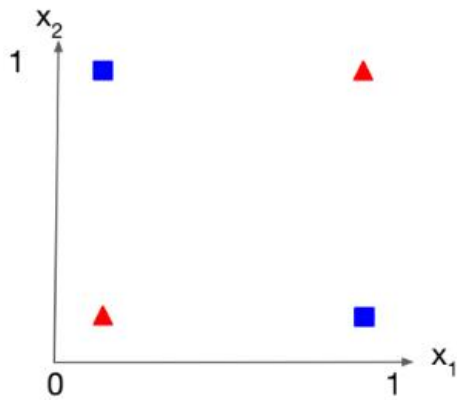

Back propagation (chain rule)

Neural Net for XOR

Tensorboard (Neural Net for XOR)


```
$ pip install tensorboard
$ tensorboard —logdir=./logs/xor_logs
```

- You can navigate to http://127.0.0.1:6006

```
[Eager Execution]
writer = tf.contrib.summary.FileWriter("./logs/xor_logs")
with tf.contrib.summary.record_summaries_every_n_global_steps(1):
    tf.contrib.summary.scalar('loss', cost)
[Keras]
tb_hist = tf.keras.callbacks.TensorBoard(log_dir="./logs/xor_logs", histogram_freq=0,
write_graph=True, write_images=True)
model.fit(x_data, y_data, epochs=5000, callbacks=[tb_hist])
```

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Thank You

로 봇 동 아 리