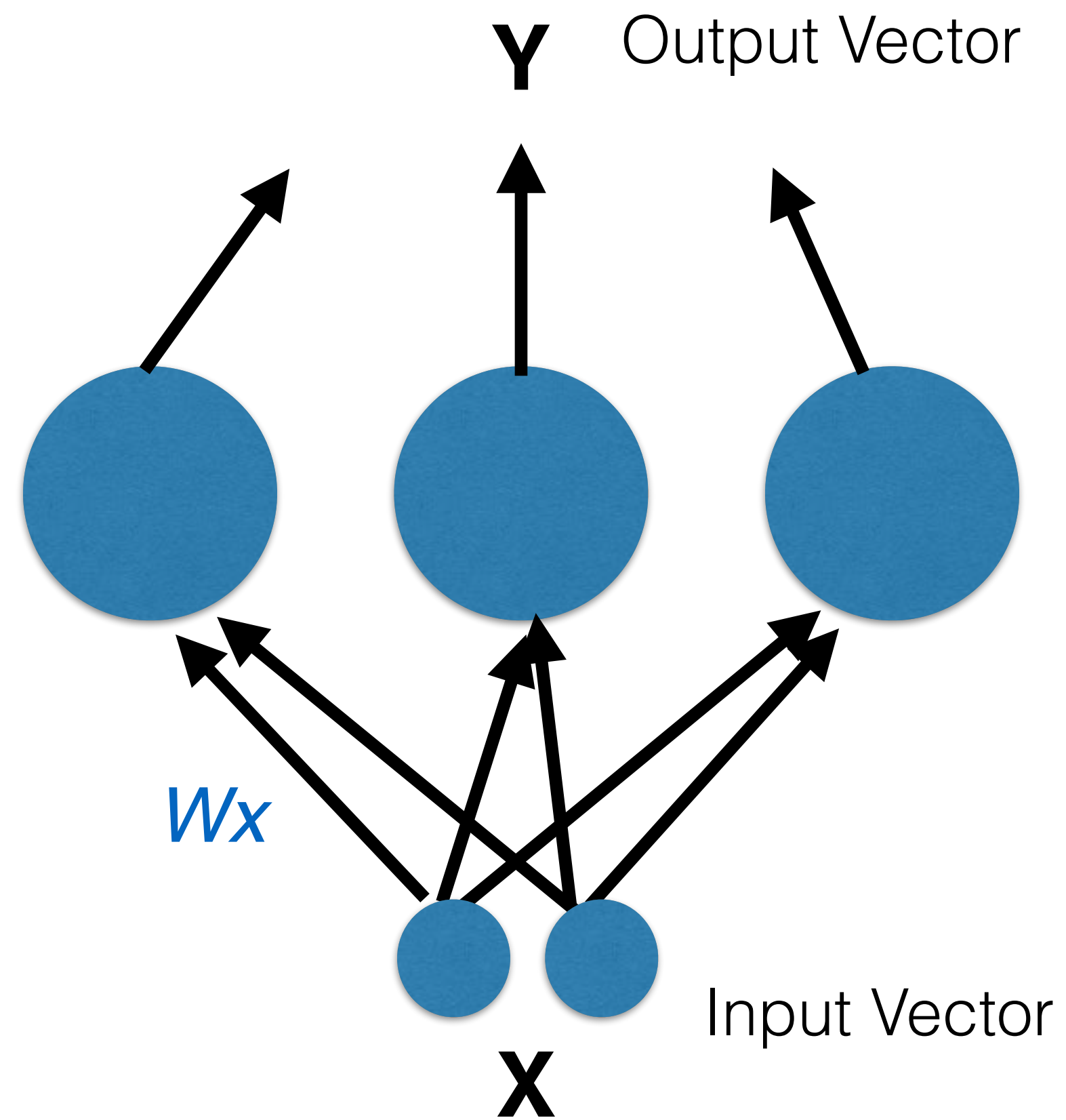


Introduce RNN & Sentiment Classification

Roger Kuo

複習一下神經網路

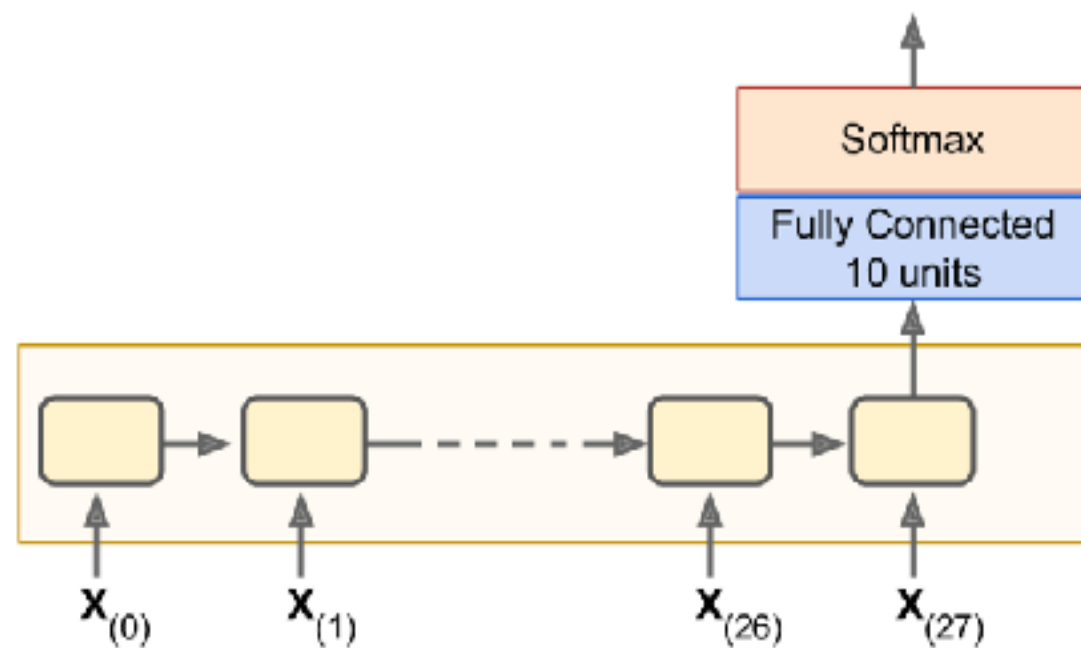
我們能怎麼改變結構
去學到**序列相依性**？



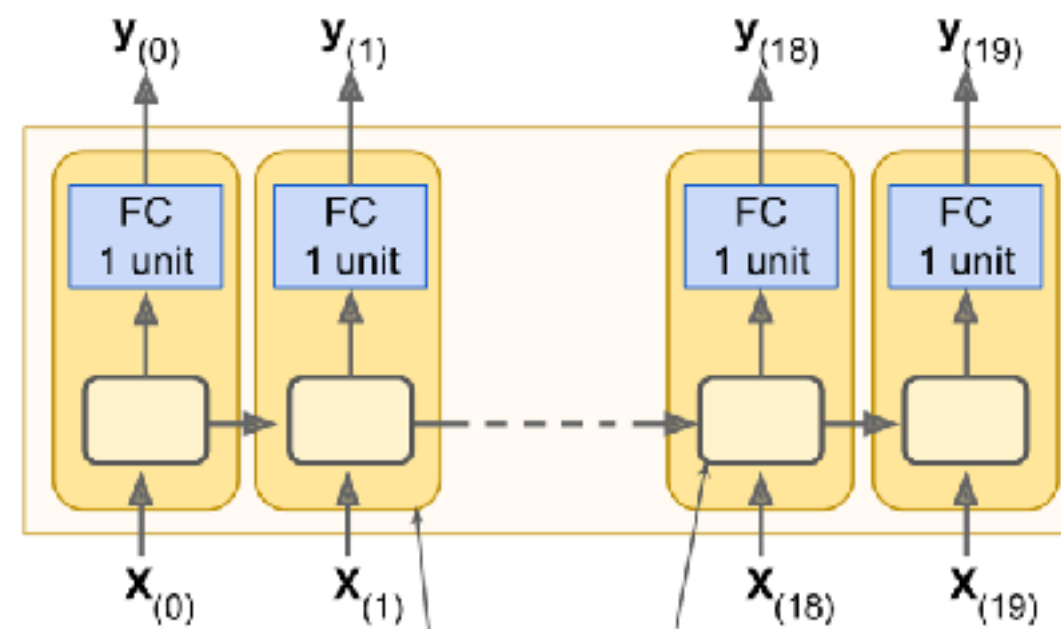
$$Y = X * Wx$$

遞迴神經網路 - RNN

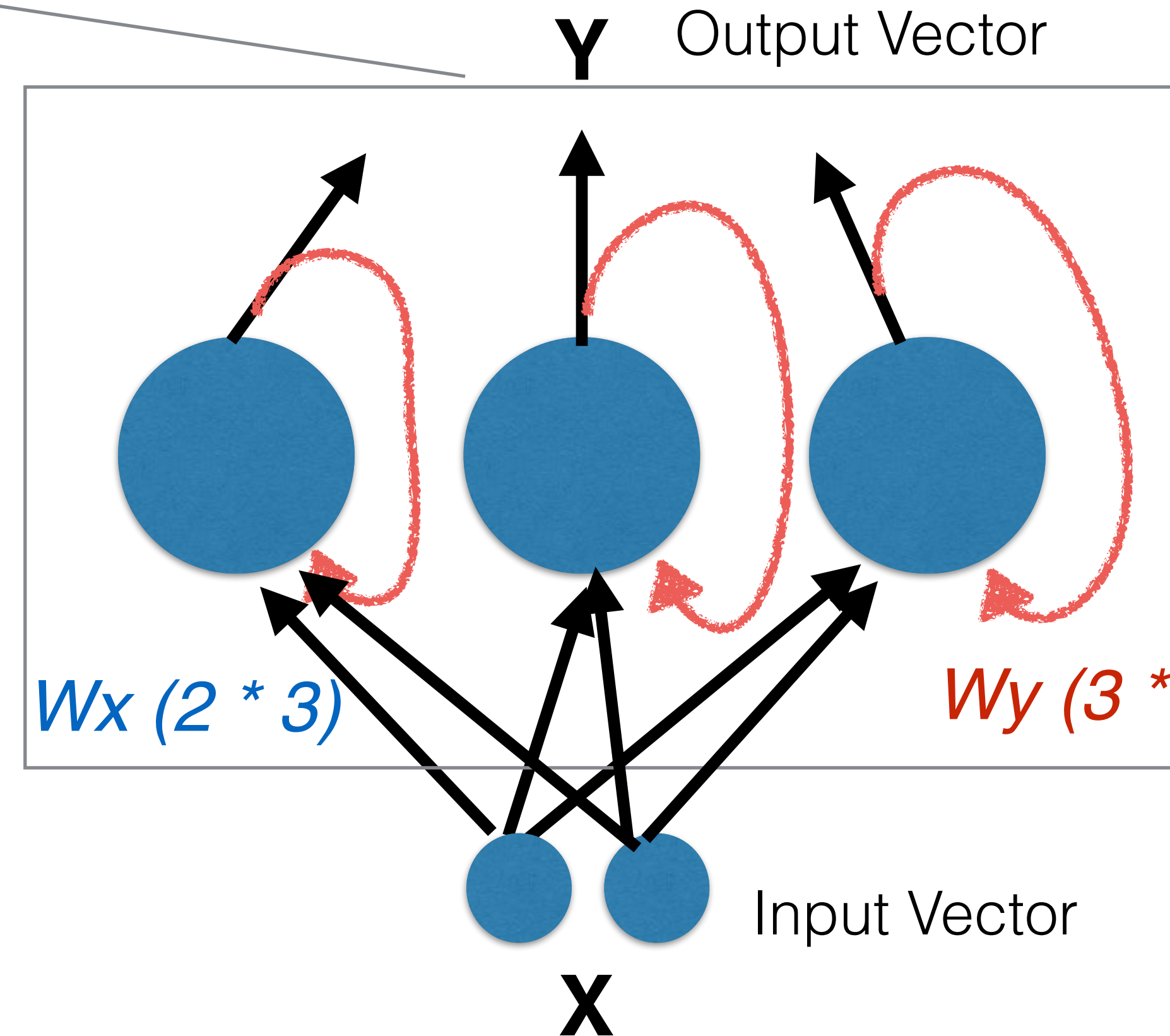
maybe append
other **layer**



only last



every timestamp



這就是
RNN layer

$$W = W_x + W_y$$
$$((2 + 3) * 3)$$

$$Y(t) = X(t) * W_x + Y(t-1) * W_y$$

RNN的資料格式

```
x_batch = np.array([
    # t = 0      t = 1
    [[0, 1, 2], [9, 8, 7]], # instance 0, length = 2
    [[3, 4, 5], [0, 0, 0]], # instance 1, length = 1
    [[6, 7, 8], [6, 5, 4]], # instance 2, length = 2
    [[9, 0, 1], [3, 2, 1]], # instance 3, length = 2
])
```

(batch_size, sequence_length, input_size)

你能想想怎麼用這樣的格式代表
一句話或連續日經濟指標嘛？

RNN 資料範例

*20170315
NASDAQ: 100, oil:46

*20170316
NASDAQ: 120, oil:58



[[100, 46], [120, 58]]

連續日經濟指標



minibatch

多個連續日區間 0315-0316
0317-0318

我 非常 愛 你



*encode or
one hot*

[2, 7, 34, 4]



embedding (word2vec)

[[0.3, 0.2], [0.1, 0.4], [0.3, 0.1], [0.5, 0.5]]

一句話



minibatch

多句話

我非常愛你
我討厭你

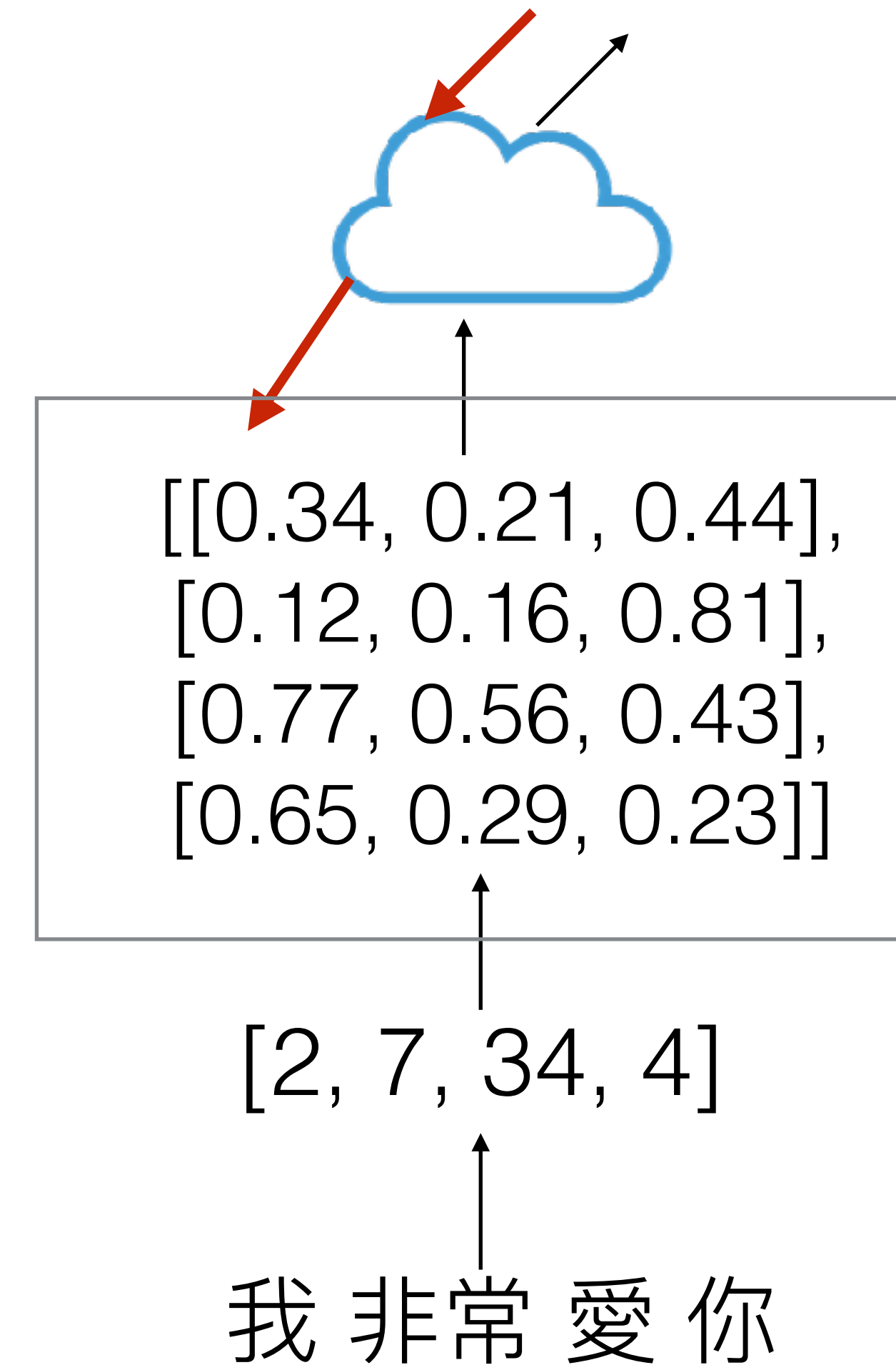
Embedding Layer

embedding size = 3

index	embedding vector		
2	0.34	0.21	0.44
	0.45	0.25	0.56
4	0.12	0.16	0.81
7	0.77	0.56	0.43
34	0.65	0.29	0.23

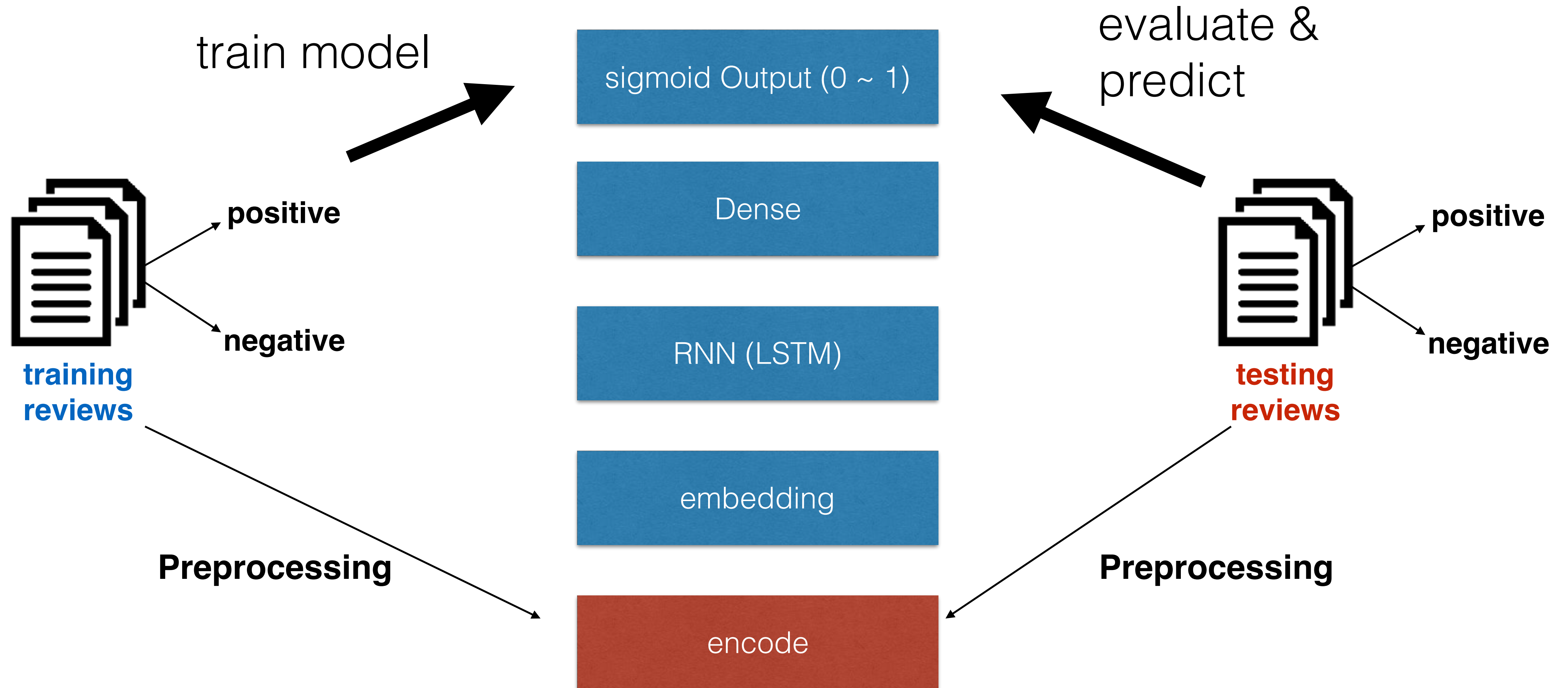
vocabulary size = 500

RNN or Other layer



練習時間

IMDB sentiment classifier



Positive example

I am **amazed** at how this movie (and most others) has an average 5 stars and lower when there are crappy movies averaging 7 to 10 stars on IMDb. The fanboy mentality strikes again. When this movie came out just about everyone slammed it. Even my ex-girlfriend said this movie was questionable. Years later I sat down to watch this movie and I found myself **enjoying**. Even laughing quite a bit.

-> 10 score, "Positive"

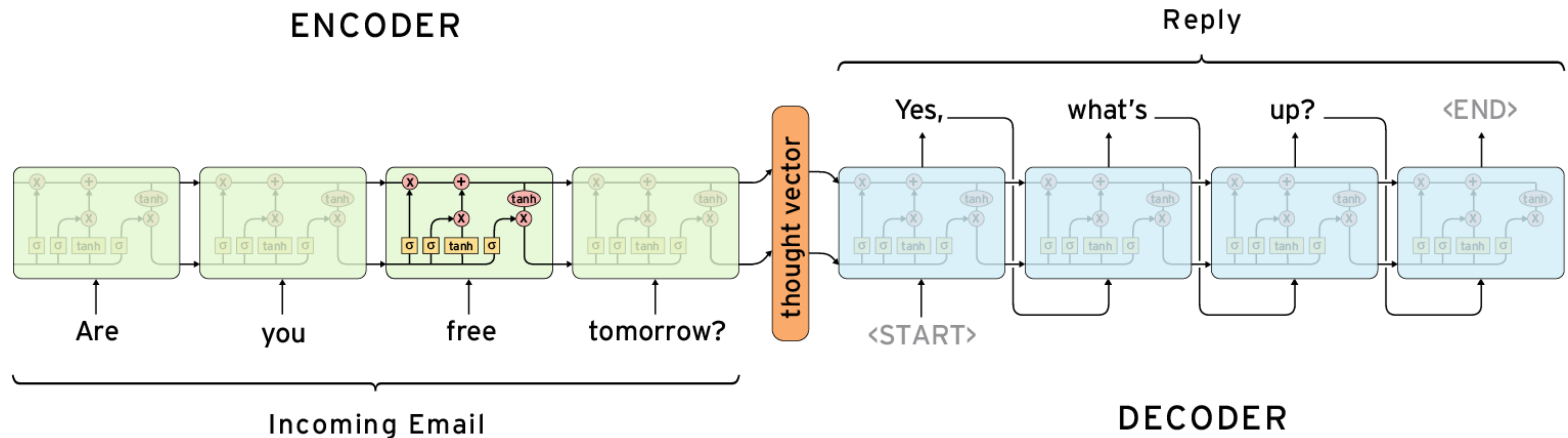
Negative example

From the beginning of the movie, it gives the feeling the director is trying to portray something, what I mean to say that instead of the story dictating the style in which the movie should be made, he has gone in the **opposite** way, he had a type of move that he wanted to make, and wrote a story to suite it. And he has **failed** in it very **badly**. I guess he was trying to make a stylish movie. Any way I think this movie is a total **waste of time and effort**. In the credit of the director, he knows the media that he is working with, what I am trying to say is I have seen worst movies than this. Here at least the director knows to maintain the continuity in the movie. And the actors also have given a decent performance.

-> **1 score, “Negative”**

練習時間

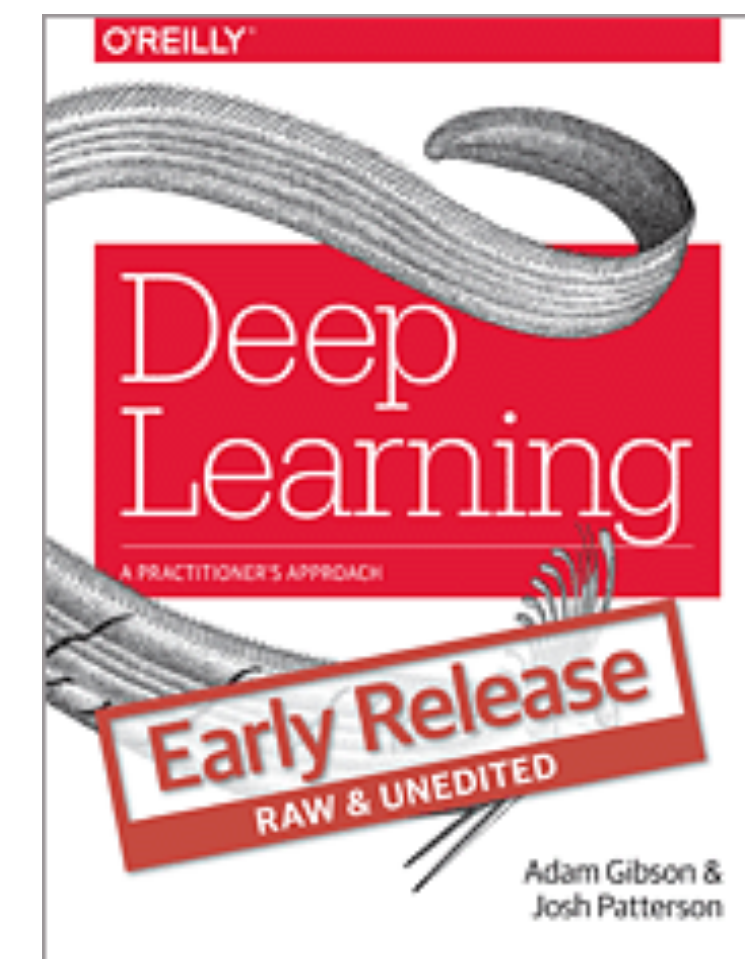
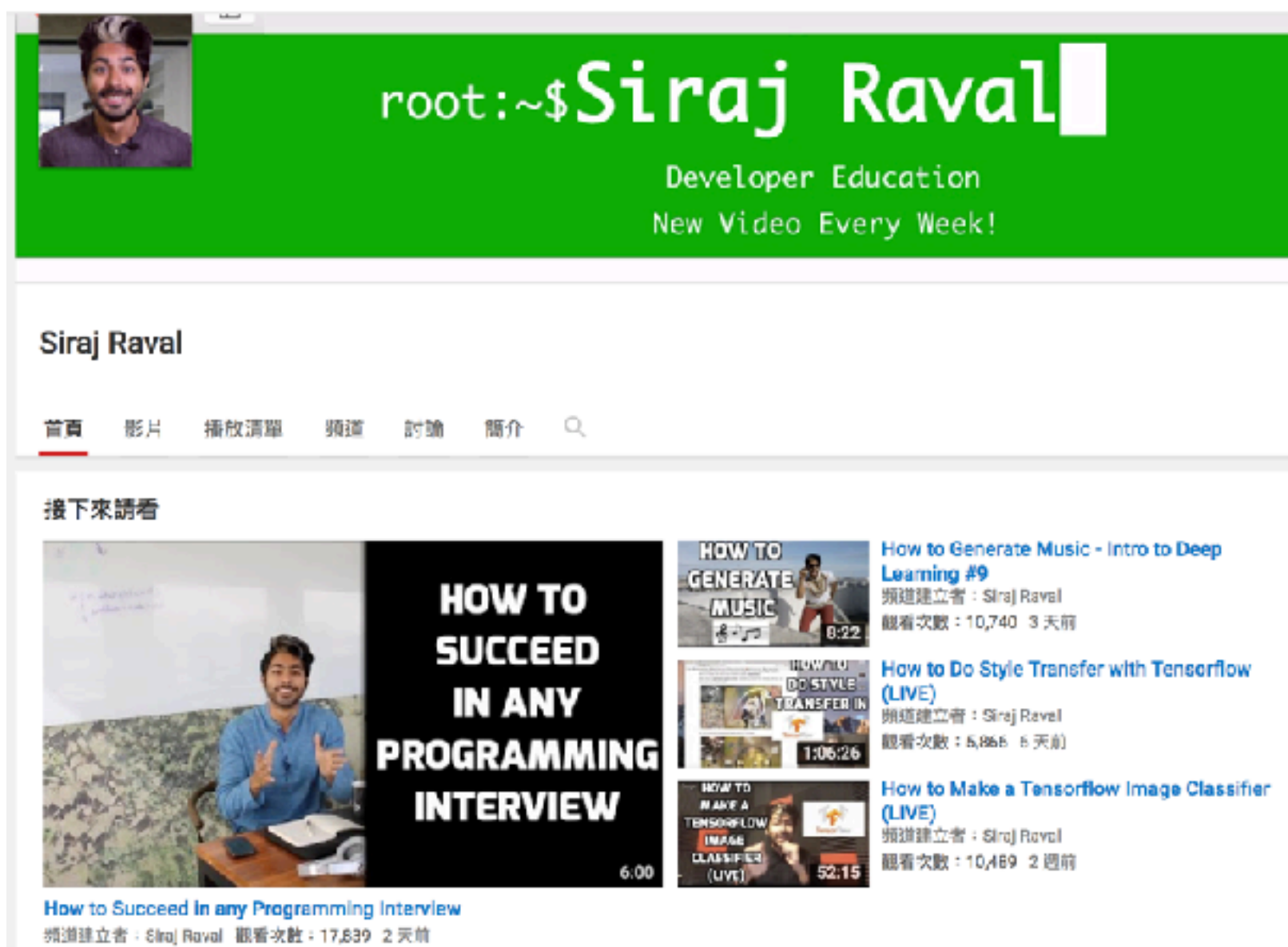
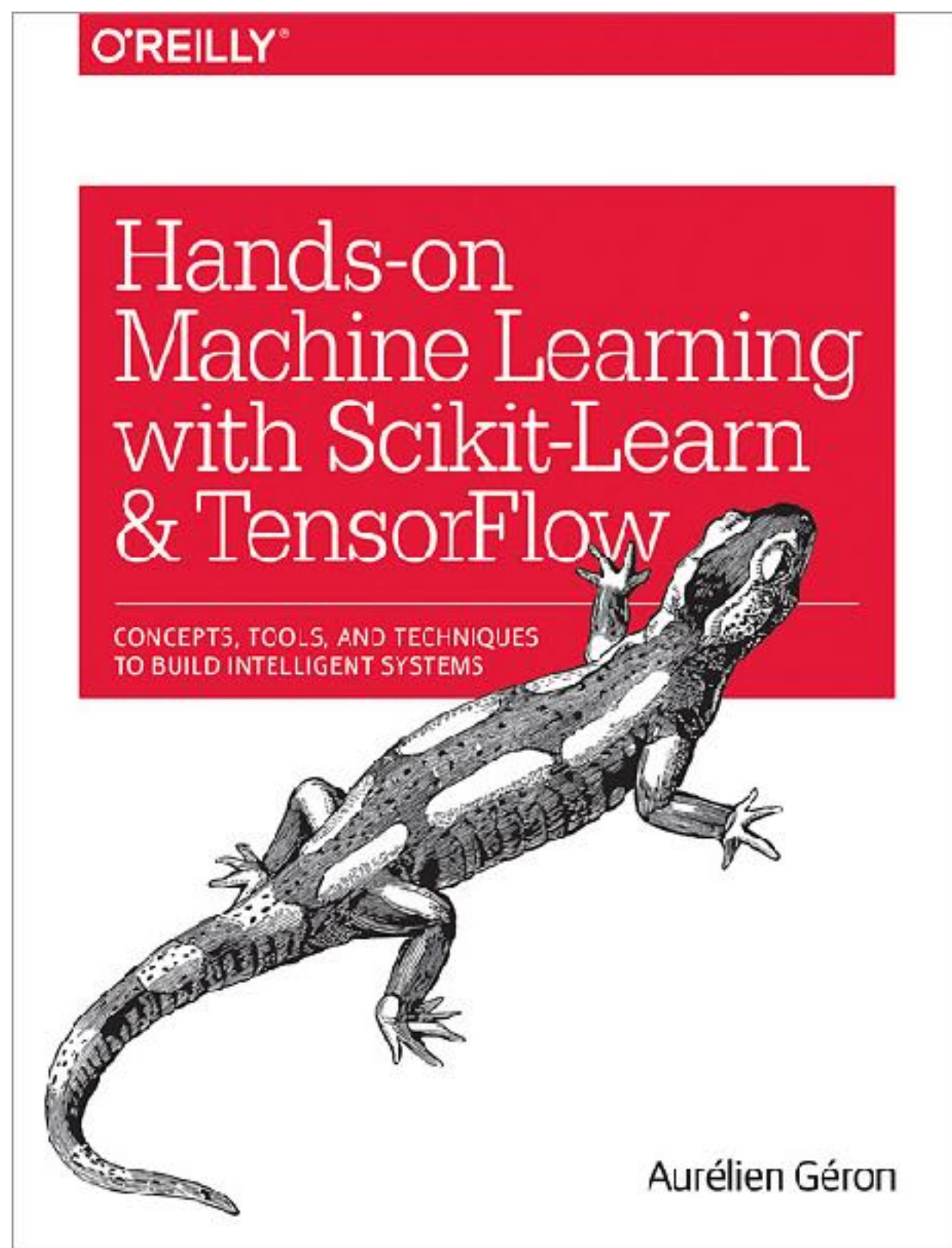
Chat Bot



How to Make an Amazing TensorFlow ChatBot Easily:

<https://www.youtube.com/watch?v=SJDEOWLHYVo&list=PL2->

Reference



深度學習再見了！

The end of season 1

MY NEXT MOVE

