Introduction to deep learning

测验, 10 个问题

✔ 恭喜！您通过了！

✔ 1 / 1 分

1。
What does the analogy "AI is the new electricity" refer to?

◉ Similar to electricity starting about 100 years ago, AI is transforming multiple industries.

▲

正确
Yes. AI is transforming many fields from the car industry to agriculture to supply-chain...

○ Through the "smart grid", AI is delivering a new wave of electricity.

○ AI runs on computers and is thus powered by electricity, but it is letting computers do things not possible before.

○ AI is powering personal devices in our homes and offices, similar to electricity.

✔ 1 / 1 分

2。
Which of these are reasons for Deep Learning recently taking off? (Check the three options that apply.)

☑ We have access to a lot more data.

▲

正确
Yes! The digitalization of our society has played a huge role in this.

☐

Deep learning has resulted in significant improvements in important applications such as online advertising, speech recognition, and image recognition.

正确

These were all examples discussed in lecture 3.

☐ Neural Networks are a brand new field.

未选择的是正确的

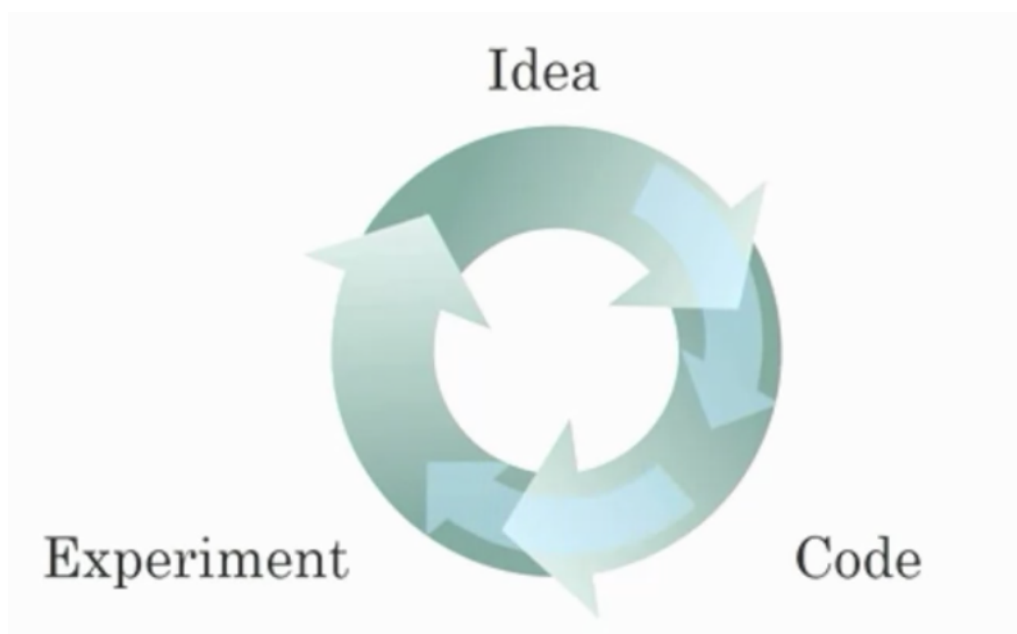☑ We have access to a lot more computational power.

正确

Yes! The development of hardware, perhaps especially GPU computing, has significantly improved deep learning algorithms' performance.

✔ 1 / 1 分

3。

Recall this diagram of iterating over different ML ideas. Which of the statements below are true? (Check all that apply.)

☑ Being able to try out ideas quickly allows deep learning engineers to iterate more quickly.

☑ Faster computation can help speed up how long a team takes to iterate to a good idea.

▲

正确

Yes, as discussed in Lecture 4.

☐ It is faster to train on a big dataset than a small dataset.

▲

未选择的是正确的

☑ Recent progress in deep learning algorithms has allowed us to train good models faster (even without changing the CPU/GPU hardware).

▲

正确

Yes. For example, we discussed how switching from sigmoid to ReLU activation functions allows faster training.

✔ 1 / 1 分

4。

When an experienced deep learning engineer works on a new problem, they can usually use insight from previous problems to train a good model on the first try, without needing to iterate multiple times through different models. True/False?

○ True

◉ False

▲

正确

Yes. Finding the characteristics of a model is key to have good performance. Although experience can help, it requires multiple iterations to build a good model.

1 / 1 分

5。

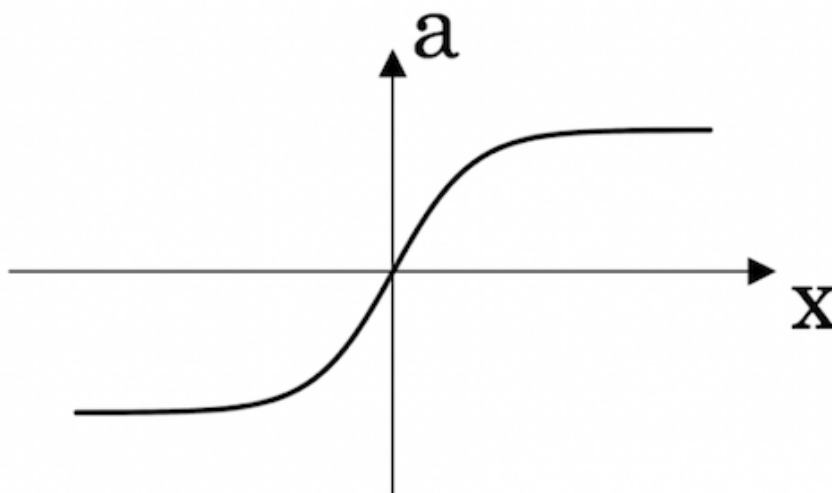Which one of these plots represents a ReLU activation function?

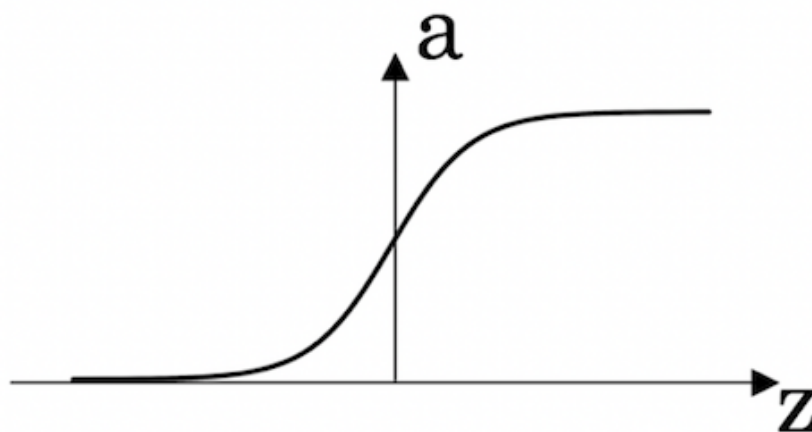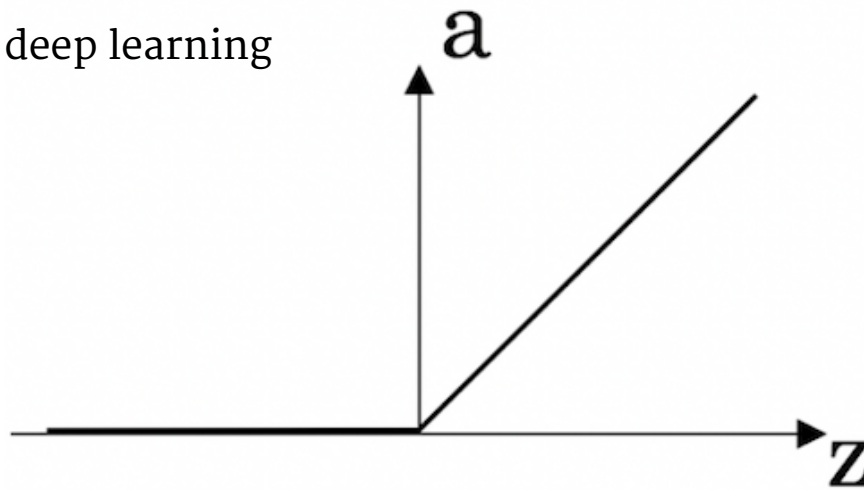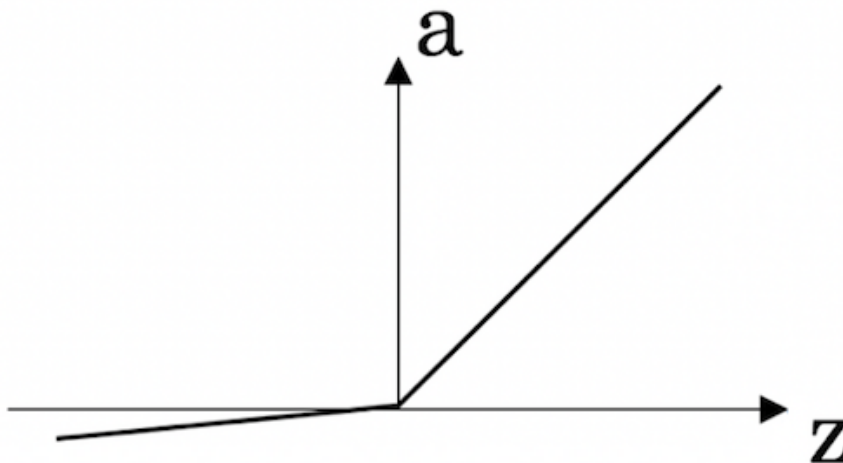○ Figure 1:

○ Figure 2:

◉ Figure 3:

正确

Correct! This is the ReLU activation function, the most used in neural networks.

○ Figure 4:

✔ 1 / 1 分

6。
Images for cat recognition is an example of "structured" data, because it is represented as a structured array in a computer. True/False?

○ True

○

正确

Yes. Images for cat recognition is an example of "unstructured" data.

✓ 1 / 1 分

7。

A demographic dataset with statistics on different cities' population, GDP per capita, economic growth is an example of "unstructured" data because it contains data coming from different sources. True/False?

◯ True

◉ False

正确

A demographic dataset with statistics on different cities' population, GDP per capita, economic growth is an example of "structured" data by opposition to image, audio or text datasets.

✗ 0 / 1 分

8。

Why is an RNN (Recurrent Neural Network) used for machine translation, say translating English to French? (Check all that apply.)

☐ It can be trained as a supervised learning problem.

正确

Yes. We can train it on many pairs of sentences x (English) and y (French).

☐ It is strictly more powerful than a Convolutional Neural Network (CNN).

未选择的是正确的

☑ Itis applicable when the input/output is a sequence (e.g., a sequence of words).

正确

Yes. An RNN can map from a sequence of english words to a sequence of french words.

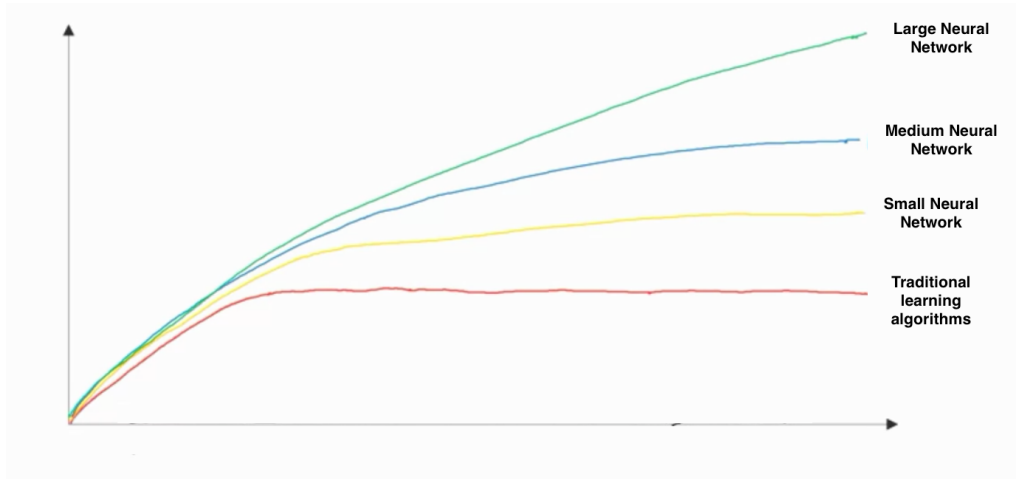☑ RNNs represent the recurrent process of Idea->Code->Experiment->Idea->....

这个选项的答案不正确

No. RNNs are a model type. The iterative process of developing DL systems is a completely separate concept.

✔ 1 / 1 分

9。

In this diagram which we hand-drew in lecture, what do the horizontal axis (x-axis) and vertical axis (y-axis) represent?

◉
- x-axis is the amount of data
- y-axis (vertical axis) is the performance of the algorithm.

正确

○
- x-axis is the input to the algorithm

- y-axis is outputs.

○
- x-axis is the performance of the algorithm
- y-axis (vertical axis) is the amount of data.

○
- x-axis is the amount of data
- y-axis is the size of the model you train.

✔   1 / 1 分

10。

Assuming the trends described in the previous question's figure are accurate (and hoping you got the axis labels right), which of the following are true? (Check all that apply.)

☑ Increasing the training set size generally does not hurt an algorithm's performance, and it may help significantly.

▲

正确

Yes. Bringing more data to a model is almost always beneficial.

☑ Increasing the size of a neural network generally does not hurt an algorithm's performance, and it may help significantly.

▲

正确

Yes. According to the trends in the figure above, big networks usually perform better than small networks.

☐ Decreasing the size of a neural network generally does not hurt an algorithm's performance, and it may help significantly.

▲

未选择的是正确的

☐ Decreasing the training set size generally does not hurt an algorithm's performance, and it may help significantly.

▲

未选择的是正确的