

## Your grade: 90%

Your latest: 90% • Your highest: 90% • To pass you need at least 80%. We keep your highest score.

Next item →

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

1 / 1 point

- ☒ Similar to electricity starting about 100 years ago, AI is transforming multiple industries.
- ☐ 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.
- ☐ Through the "smart grid", AI is delivering a new wave of electricity.

✓ Correct

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

2. Which of the following play a major role to achieve a very high level of performance with Deep Learning algorithms?

1 / 1 point

- ☐ Better designed features to use.
- ☒ Large models.

✓ Correct

Yes. In most cases it is necessary for a very large neural network to make use of all the available data.

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

✓ Correct

These were all examples discussed in lecture 3.

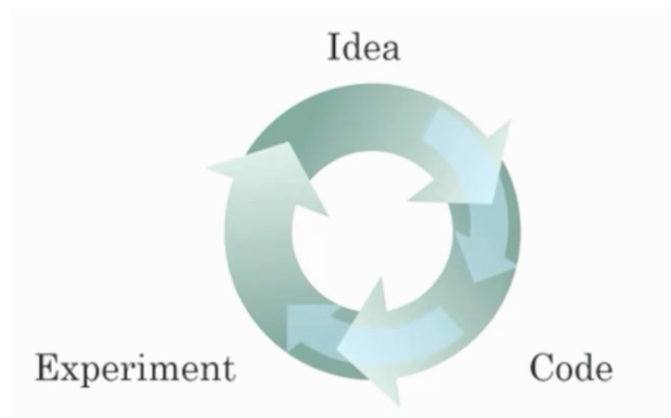
- ☐ Smaller models.
- ☒ Large amounts of data.

✓ Correct

Yes. Some of the most successful Deep Learning algorithms make use of very large datasets for training.

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

1 / 1 point



- ☐ Better algorithms allow engineers to get more data and then produce better Deep Learning models.
- ☒ Improvements in the GPU/CPU hardware enable the discovery of better Deep Learning algorithms.

✓ Correct

Yes. By speeding up the iterative process, better hardware allows researchers to discover better algorithms.

- ☐ Larger amounts of data allow researchers to try more ideas and then produce better algorithms in less time.
- ☒ Better algorithms can speed up the iterative process by reducing the necessary computation time.

✓ Correct

Yes. Recall how the introduction of the ReLU activation function helped reduce the time needed to train a model.

4. Neural networks are good at figuring out functions relating an input  $x$  to an output  $y$  given enough examples. True/False?

1 / 1 point

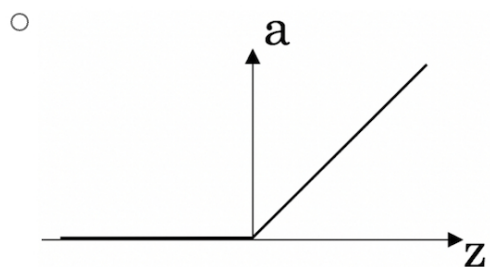
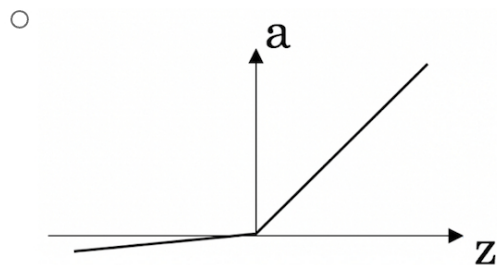
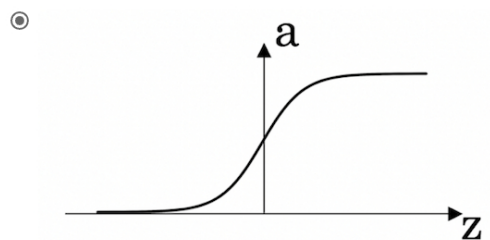
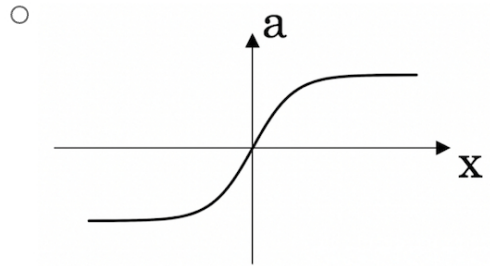
- ☐ False  
☒ True

✔ Correct

Exactly, with neural networks, we don't need to "design" features by ourselves. The neural network figures out the necessary relations given enough data.

5. Which of the following depicts a Sigmoid activation function?

1 / 1 point



✔ Correct

Correct! This is the sigmoid activation function; this function was changed for the ReLU activation function helping with the training of NN.

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

1 / 1 point

- ☒ False  
☐ True

✔ Correct

Yes. Images for cat recognition are examples of "unstructured" data.

7. A dataset is composed of age and weight data for several people. This dataset is an example of "structured"

1 / 1 point

data because it is represented as an array in a computer. True/False?

- ☒ True  
☐ False

✓ **Correct**

Yes, the sequences can be represented as arrays in a computer. This is an example of structured data.

8. Why can an RNN (Recurrent Neural Network) be used to create English captions to French movies? Choose all that apply.

1 / 1 point

- ☐ The RNN requires a small number of examples.  
☐ RNNs are much more powerful than a Convolutional neural Network (CNN).  
☒ It can be trained as a supervised learning problem.

✓ **Correct**

Yes, the data can be used as  $x$  (movie audio) to  $y$  (caption text).

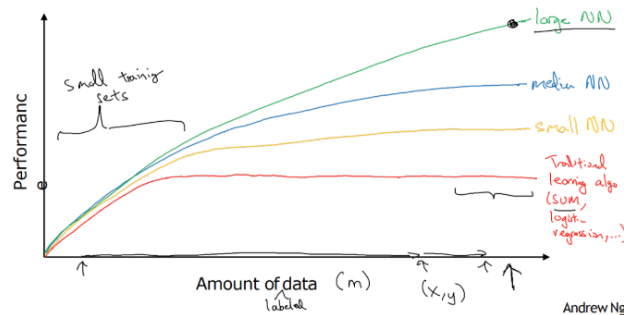
- ☒ The RNN is applicable since the input and output of the problem are sequences.

✓ **Correct**

Yes, an RNN can map from a sequence of sounds (or audio files) to a sequence of words (the caption).

## Scale drives deep learning progress

0 / 1 point



9. From the given diagram, we can deduce that Large NN models are always better than traditional learning algorithms. True/False?

- ☒ True  
☐ False

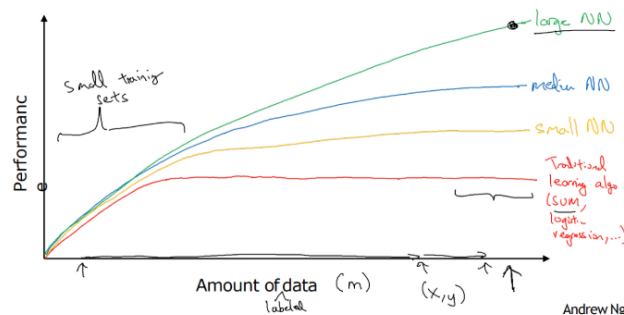
✗ **Incorrect**

No, when the amount of data is not large the performance of traditional learning algorithms is shown to be the same as NN.

10. Assuming the trends described in the figure are accurate. Which of the following statements are true? Choose all that apply.

1 / 1 point

## Scale drives deep learning progress



- ☐ Increasing the training set size of a traditional learning algorithm always improves its performance.  
☐ Decreasing the training set size generally does not hurt an algorithm's performance, and it may help significantly.  
☒ Increasing the size of a neural network generally does not hurt an algorithm's performance, and it may help significantly.

✓ **Correct**

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

- ☒ Increasing the training set size of a traditional learning algorithm stops helping to improve the performance after a certain size.

👉 **Correct**

Yes. After a certain size, traditional learning algorithms don't improve their performance.