Introduction to Deep Learning

✓ **Congratulations! You passed!**

Grade received 100%   **Latest Submission Grade** 100%   **To pass** 80% or higher

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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.

   ⤢ Expand

   ✓ **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?

- ☑ Large amounts of data.

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

- ☑ 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.
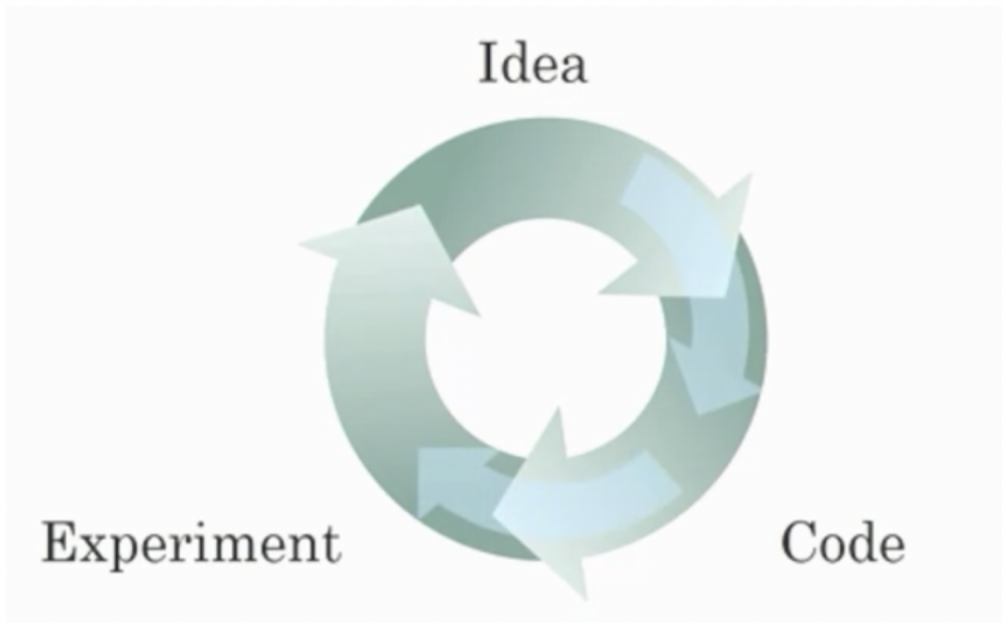
- ☐ Smaller models.

- ☐ Better designed features to use.

[↗ **Expand**]

⊘ **Correct**
Great, you got all the right answers.

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

- [ ] Better algorithms allow engineers to get more data and then produce better Deep Learning models.

- [x] 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.

- [ ] Larger amounts of data allow researchers to try more ideas and then produce better algorithms in less time.

☑ 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.

⤢ **Expand**

⊘ **Correct**
Great, you got all the right answers.

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
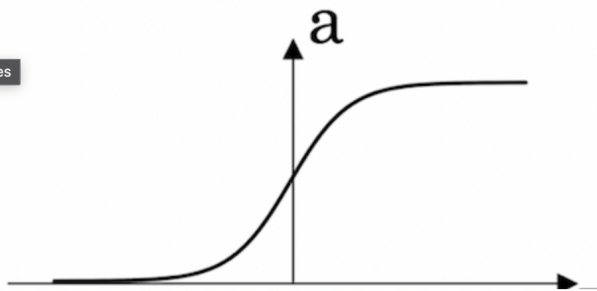
◉ True

⤢ **Expand**

⊘ **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 one of these plots represents a ReLU activation function?

1 / 1 point

○ Figure 2:

Timed quizzes

Expand

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

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

Expand

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

1 / 1 point

(●) True

(○) False

⤢ Expand

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

8. RNNs (Recurrent Neural Networks) are good for data with a temporal component. True/False?

1 / 1 point

(○) False

(●) True

⤢ Expand
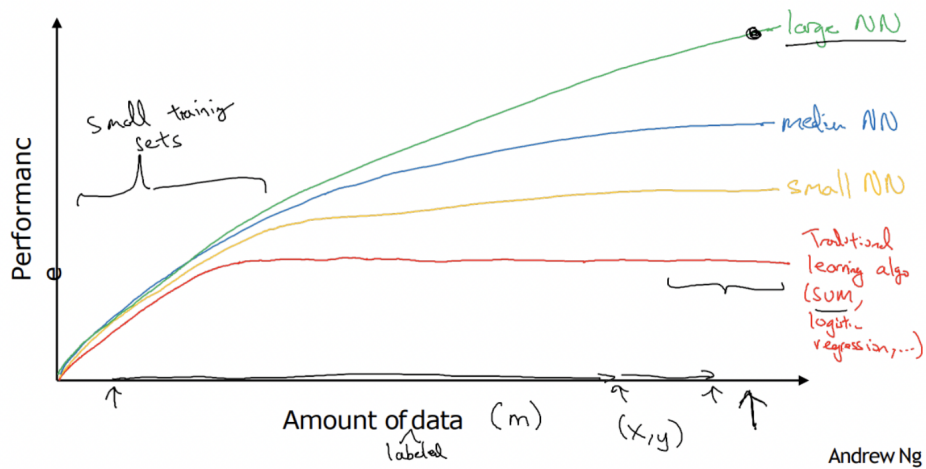
✓ **Correct**
Yes, RNN are designed to work with sequences; the elements of a sequence can be sorted by a temporal component.

Scale drives deep learning progress

Suppose the information given in the diagram is accurate. We can deduce that when using large training sets, for a model to keep improving as the amount of data for training grows, the size of the neural network must grow. True/False?

○ False

◉ True

⤢ Expand

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.)

1 / 1 point

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

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

☐ 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.

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

⤢ **Expand**

⊘ **Correct**
Great, you got all the right answers.