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.

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

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

[↗ Expand]

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

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

 1 / 1 point

- ☑ 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.

- ☑ We have access to a lot more data.

  > ✓ **Correct**
  > Yes! The digitalization of our society has played a huge role in this.

- ☐ Neural Networks are a brand new field.

- ☑ We have access to a lot more computational power.

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

3. Recall the diagram of iterating over different ML ideas. Which of the stages shown in the diagram was improved with the use of a better GPU/CPU?
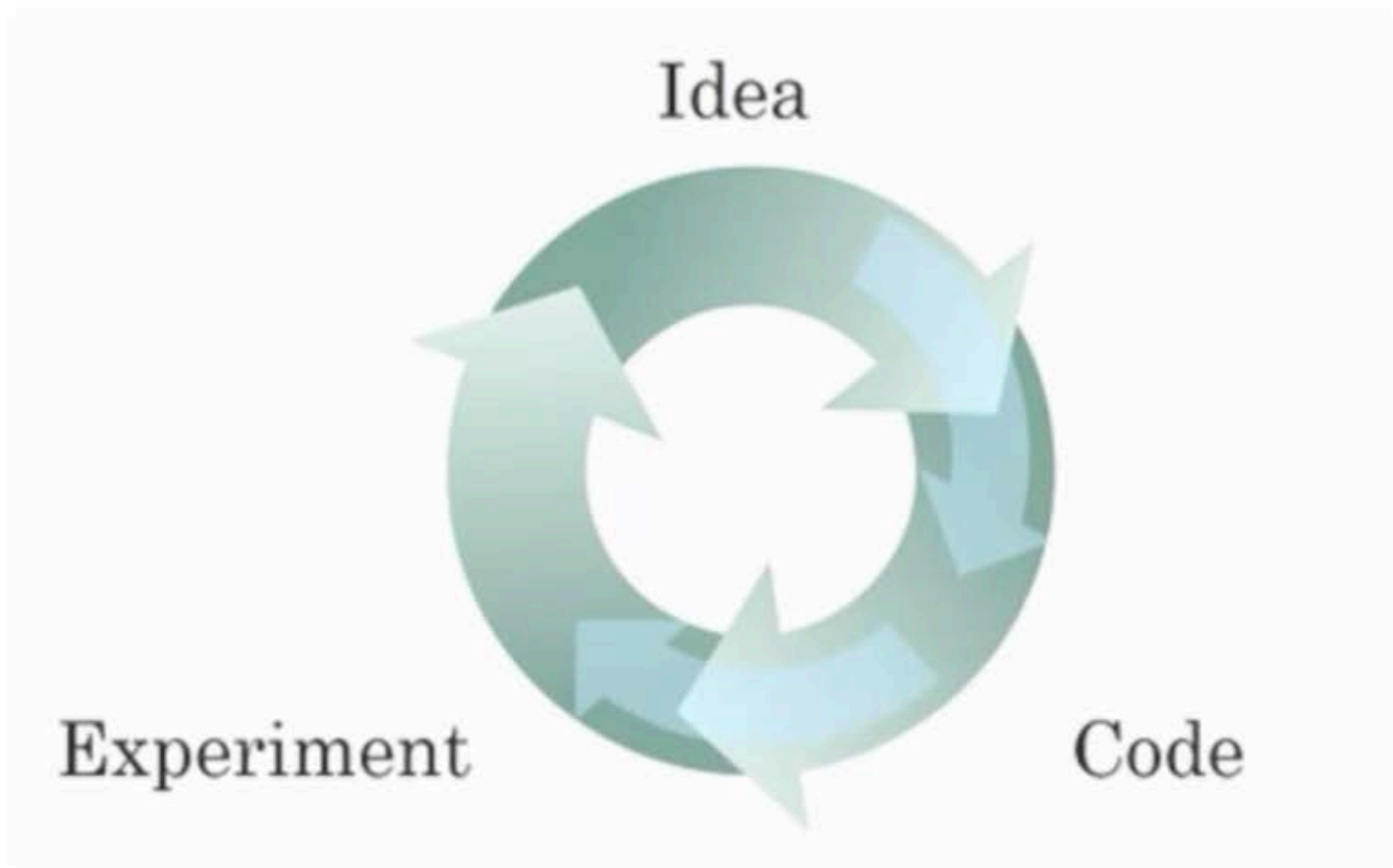
- [ ] Some algorithms are specifically designed to run experiments faster.

- [x] Without better hardware, there is no way to train models faster.

  > **! This should not be selected**
  >
  > No. The creation of better algorithms can reduce the time needed to train a model. Recall the effect of introducing the ReLU function.

- [ ] With larger datasets, the iteration process is faster.

- [x] Experiments finish faster, producing better ideas through increased iteration tempo.

  > **✓ Correct**
  >
  > Yes. The experiments help to test ideas, by getting the feedback from the experiments new variations can be tested and the results might indicate new directions to explore.

⤢ **Expand**

4. Neural networks are good at figuring out functions relating an input x to an output y given enough examples. True/False?
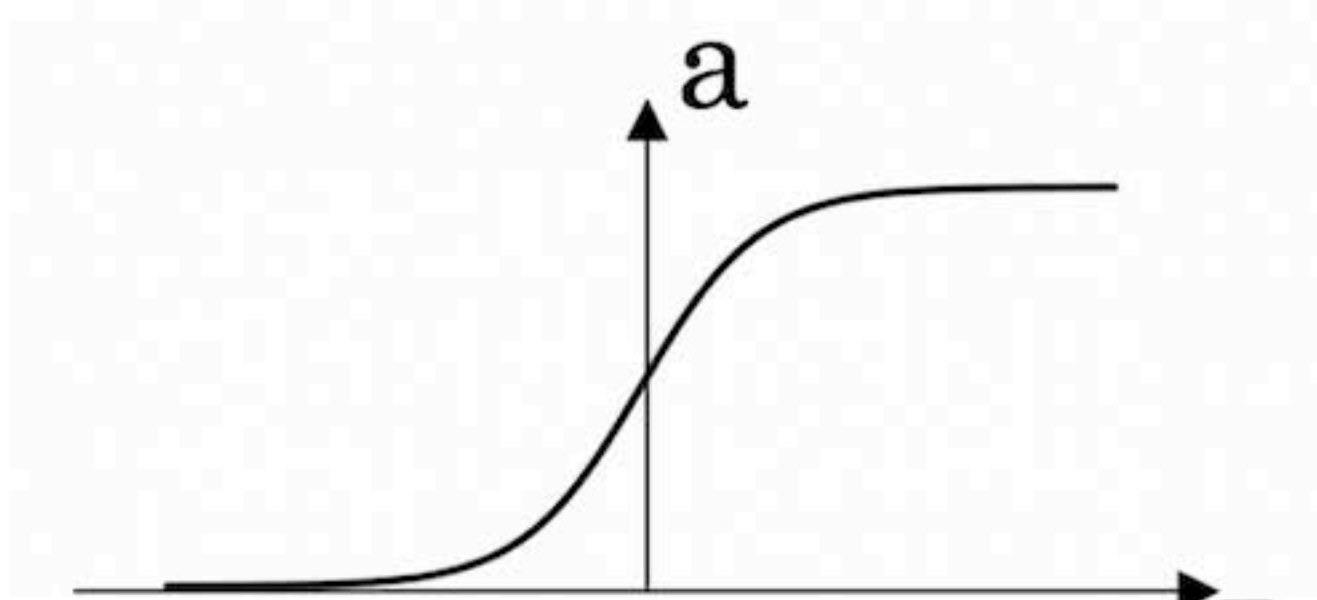
1 / 1 point

- ⦿ True
- ○ False

⤢ **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:

⤢ **Expand**

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

6. Features of animals, such as weight, height, and color, are used for classification between cats, dogs, or others. This is an example of "structured" data, because they are represented as arrays in a computer. True/False?

- ◉ True

  Yes. The data can be represented by columns of data. This is an example of structured data, unlike images of the animal.

- ○ False

  No. The data can be represented by columns of data. This is an example of structured data, unlike images of the animal.

⤢ Expand

✓ **Correct**

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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?

- ○ False

- ◉ True

⤢ Expand

✓ **Correct**

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

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

- ☑ 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.

☐ RNNs are much more powerful than a Convolutional neural Network (CNN).

☐ The RNN requires a small number of examples.

⤢ **Expand**

9.

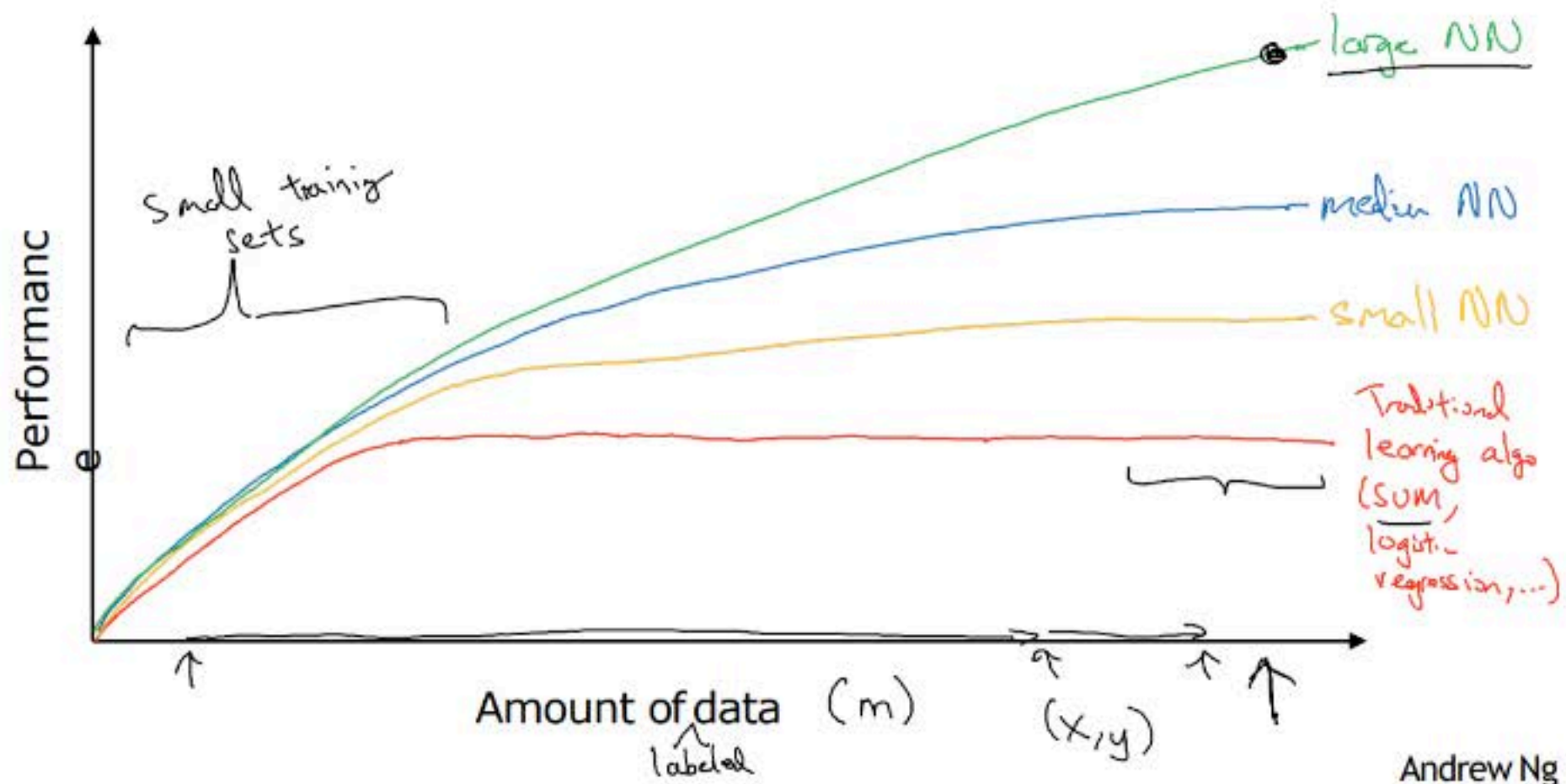# Scale drives deep learning progress

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

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

☐ 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.

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

[Expand]