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## Question

True or false? As explained in this lecture, every input layer feature is interconnected with every hidden layer feature.

○ False

◉ True

✓ **Correct**

Skip    Continue

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# Question

Would structured or unstructured data have features such as pixel values or individual words?

- ○ Structured data
- ◉ Unstructured data

✓ **Correct**

## Question

What will the variable $m$ denote in this course?

○ Number of hidden layers

◉ Number of training examples

○ The expected output

○ Slope

✓ **Correct**

# Introduction to Deep Learning

## Latest Submission Grade 100%

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

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

   ● 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.

   ⊘ **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.)    <span style="float:right">1 / 1 point</span>

☑ We have access to a lot more data.

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

☑ 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.

☐ Neural Networks are a brand new field.

☑ 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.

**3.** Recall this diagram of iterating over different ML ideas. Which of the statements below are true? (Check all that apply.)
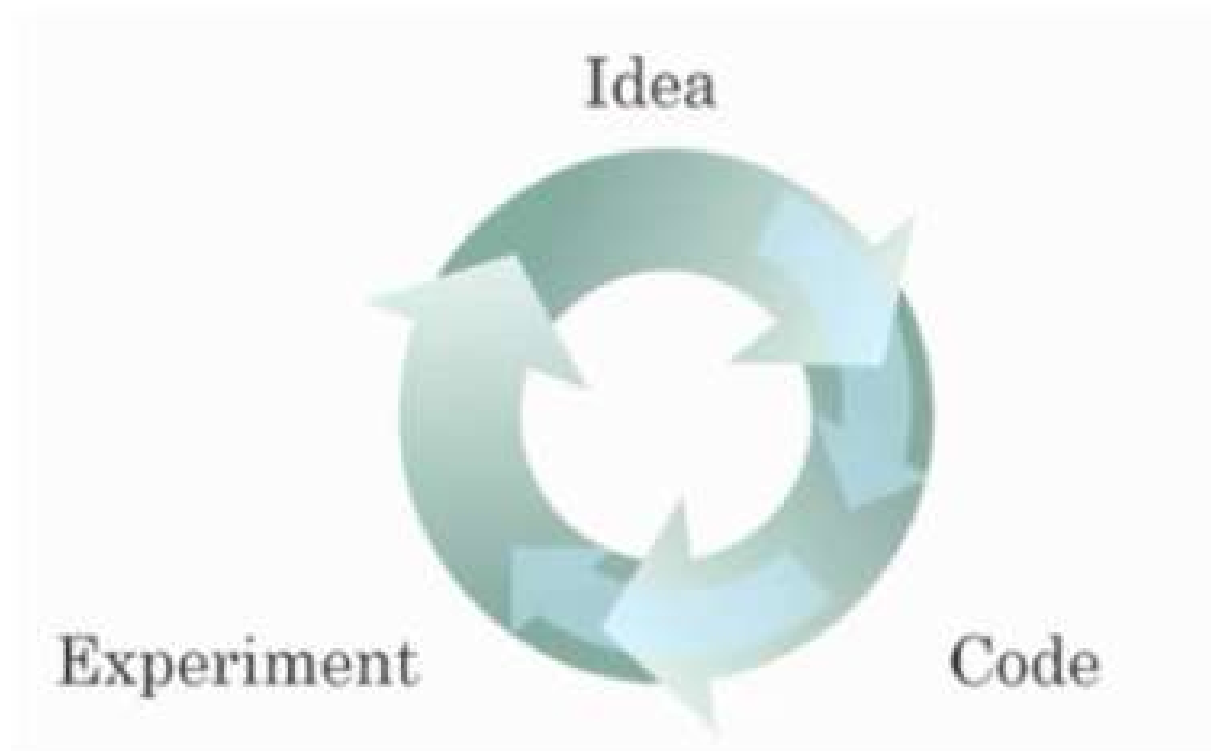
- ☑ Recent progress in deep learning algorithms has allowed us to train good models faster (even without changing the CPU/GPU hardware).

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

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

  ⊘ **Correct**
  Yes, as discussed in Lecture 4.

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

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

  ⊘ **Correct**
  Yes, as discussed in Lecture 4.

**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?
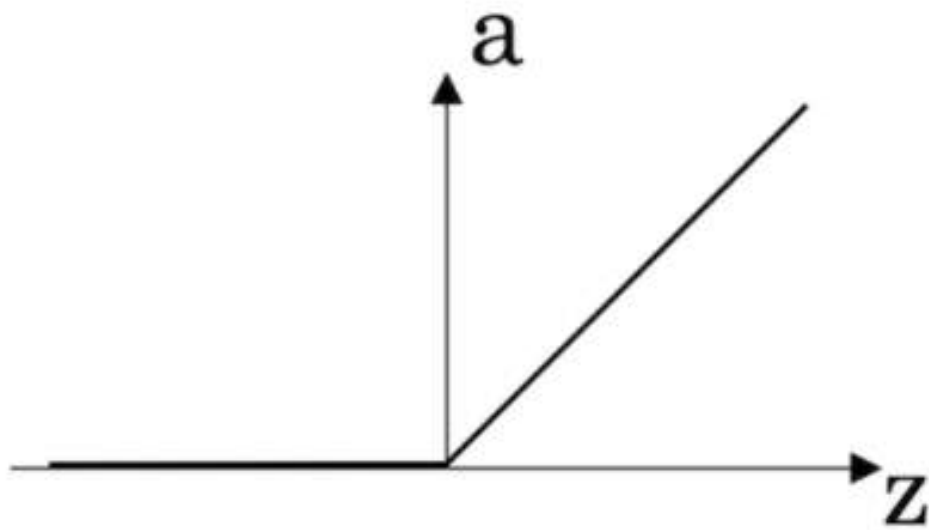
1 / 1 point

- ⦿ False

- ○ True

✓ **Correct**
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.

Figure 3:



✓ **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

○ True

● False

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

**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?

1 / 1 point

● False

○ True

✓ **Correct**
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.

**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.

⊘ **Correct**
  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).

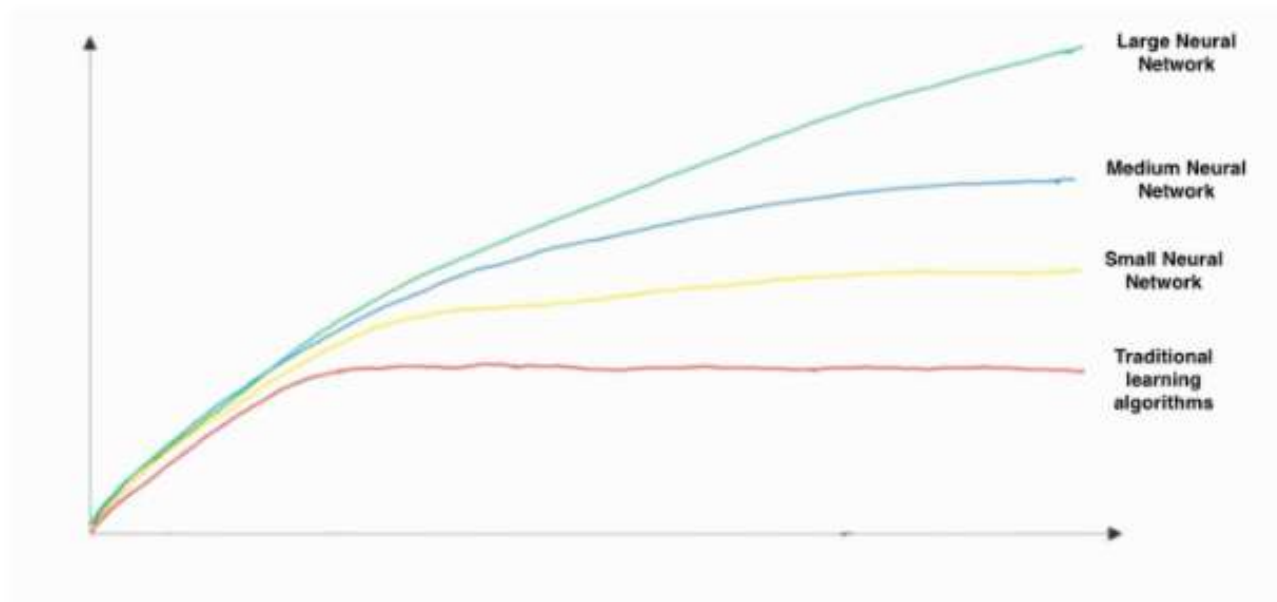☐ RNNs represent the recurrent process of Idea->Code->Experiment->Idea->....

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

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

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.

Light

**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.

☑ 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.

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