



## Introduction to deep learning

Quiz, 10 questions

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

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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.
  - ☐ 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.
  - ☒ We have access to a lot more computational power.
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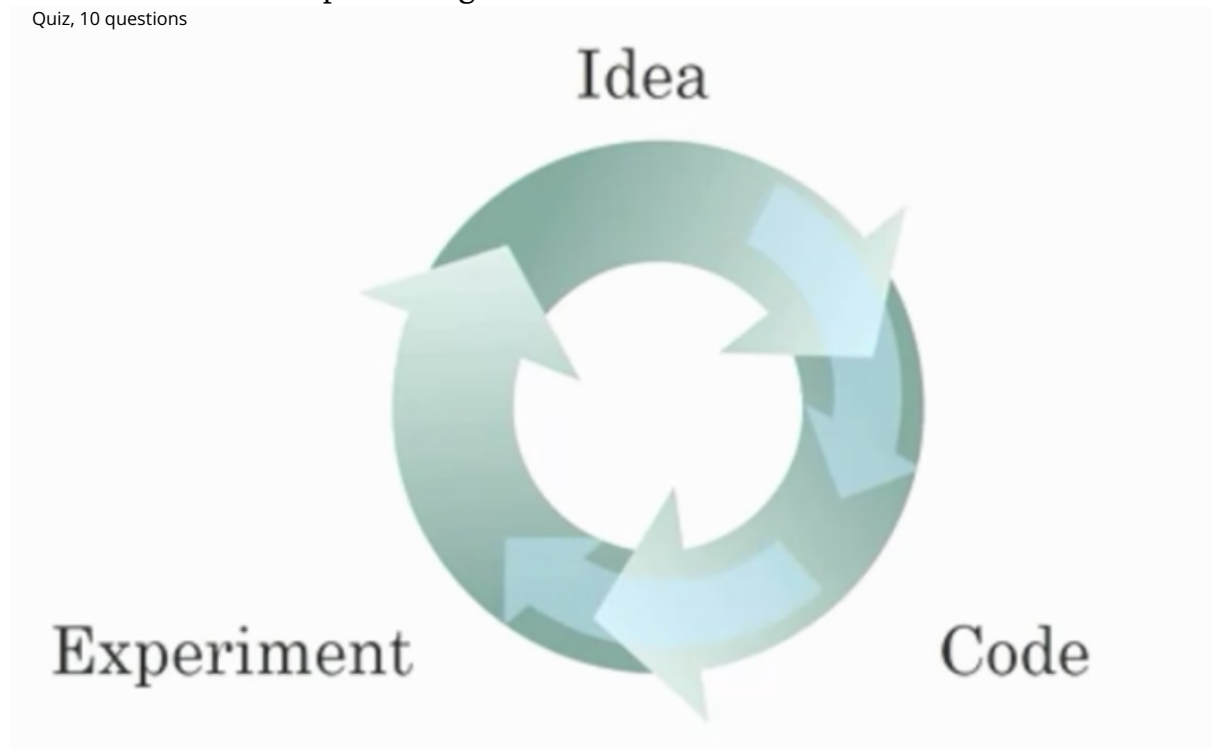
3.

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



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- ☒ 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.
- ☐ It is faster to train on a big dataset than a small dataset.
- ☒ Recent progress in deep learning algorithms has allowed us to train good models faster (even without changing the CPU/GPU hardware).

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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

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5.

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Which one of these plots represents a ReLU activation function?

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Figure 1:

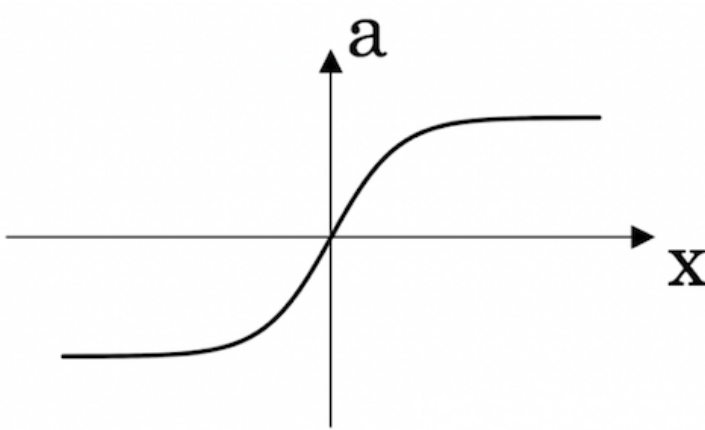


Figure 2:

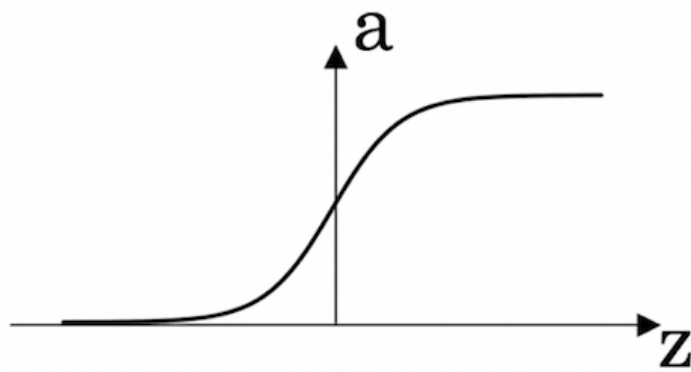


Figure 3:



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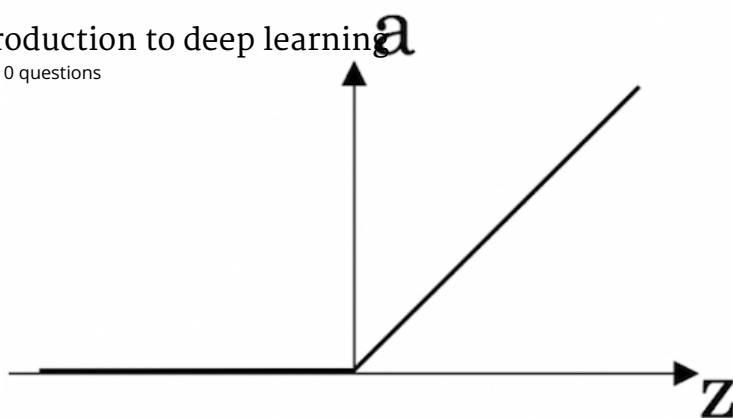
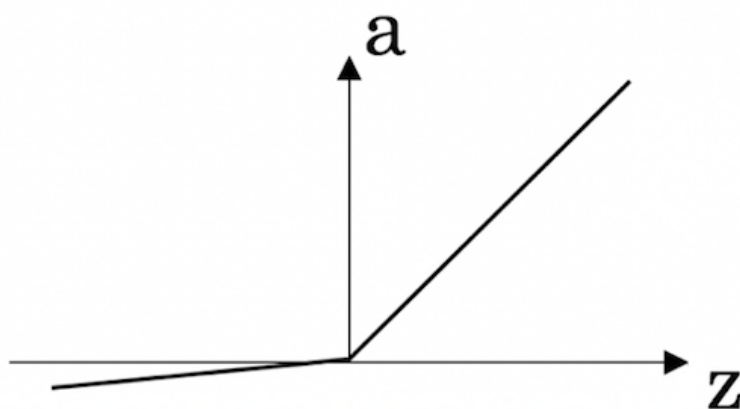


Figure 4:



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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



False

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7.



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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?

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☐

True

☒

False

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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.

☐

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

☒

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

☐

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

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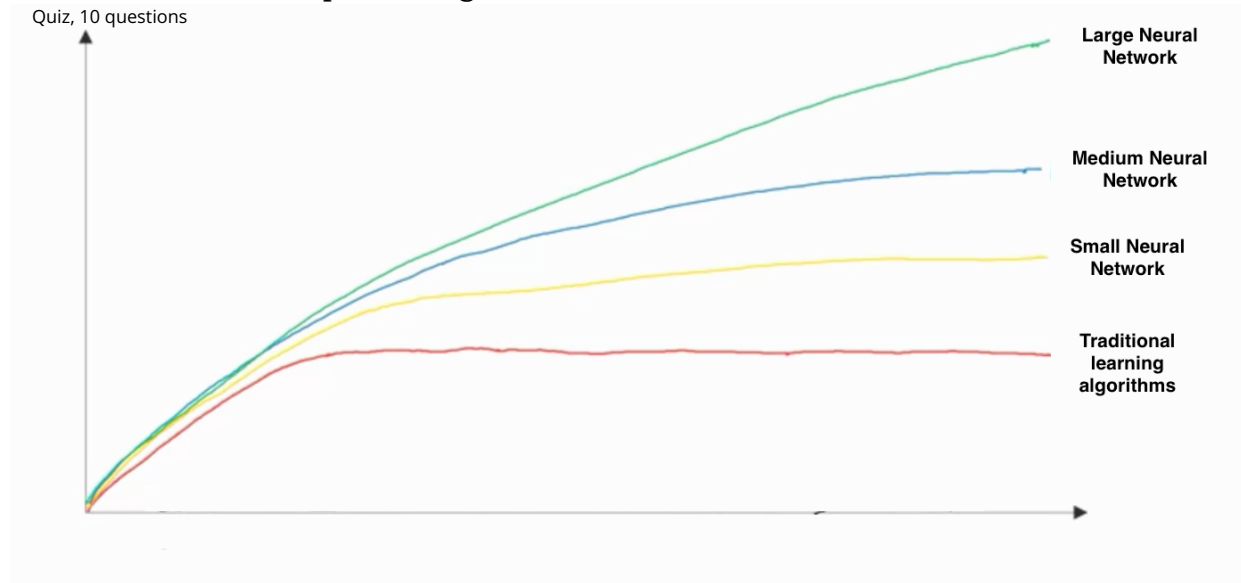
9.

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



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- ☒ • x-axis is the amount of data
- ☒ • y-axis is the size of the model you train.
- ☐ • x-axis is the amount of data
- ☐ • y-axis (vertical axis) is the performance of the algorithm.
- ☐ • 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.

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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.)

- ☐ Decreasing the size of a neural network 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.



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

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