✓ **Congratulations! You passed!**

| Grade | Latest Submission | To pass 80% or | |
|---|---|---|---|
| received 100% | Grade 100% | higher | **Go to 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 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.

[ ⤢ **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

- ☐ Neural Networks are a brand new field.
- ☑ We have access to a lot more data.

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

- ☑ 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 computational power.

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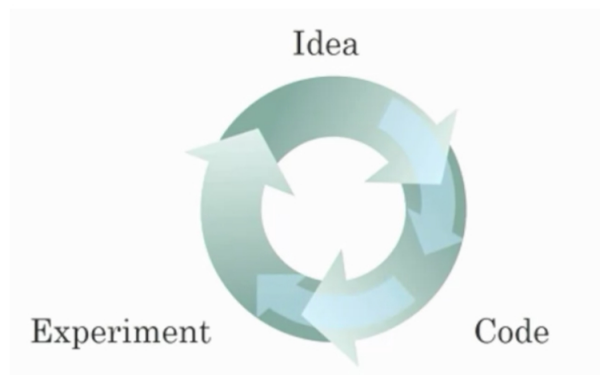
[ ⤢ **Expand** ]

✓ **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.)                    1 / 1 point



- ☑ 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.

- ☑ 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.

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

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

[ ↗ Expand ]

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

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**4.** When building a neural network to predict housing price from features like size, the number of bedrooms, zip code, and wealth, it is necessary to come up with other features in between input and output like family size and school quality. True/False?

**1 / 1 point**

◉ False

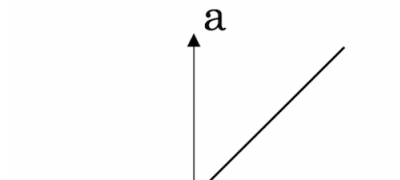○ True

[ ↗ Expand ]

✓ **Correct**
A neural network figures out by itself the "features" in between using the samples used to train it.

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

**1 / 1 point**

○ Figure 3:



[ ↗ Expand ]

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

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**6.** Which of the following are examples of unstructured data? Choose all that apply.

**1 / 1 point**

☐ Information about elephants' weight, height, age, and the number of offspring.

☑ Sound files for speech recognition.

✓ **Correct**
Yes, audio is an example of "unstructured" data.

☑ Images for bird recognition.

✓ **Correct**
Yes, images are an example of "unstructured" data.

☑ Text describing size and number of pages of books.

✓ **Correct**
Yes, text documents are examples of "unstructured" data.

[ ↗ Expand ]

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

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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?

**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.** 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 requires a small number of examples.

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

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

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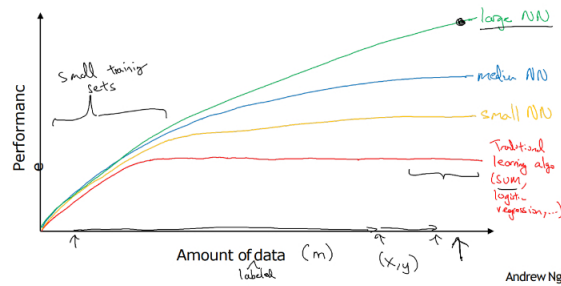Yes, an RNN can map from a sequence of sounds (or audio files) to a sequence of words (the caption).

[ ↗ Expand ]

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

**9.**

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?
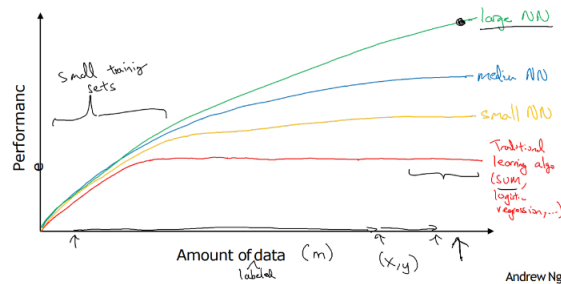
○ False

◉ True

[ ↗ Expand ]

⊘ **Correct**
Yes, the graph shows that after a certain amount of data is fed to a NN it stops increasing its performance. To increase the performance it is necessary to use a larger model.

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

☑ 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.

☐ 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 always improves its performance.

[↗ Expand]

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