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1. Which of the following best describes the role of AI in the expression "an AI-powered society"?

1 / 1 point

- ☐ AI controls the power grids for energy distribution, so all the power needed for industry and in daily life comes from AI.
- ☒ AI is an essential ingredient in realizing tasks, in industry and in personal life.
- ☐ AI helps to create a more efficient way of producing energy to power industries and personal devices.

[Expand](#)

✓ **Correct**

In an AI-powered society AI plays a fundamental role to complete most tasks, in industry and personal life.

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

1 / 1 point

- ☒ 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.

- ☒ 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.

- ☐ 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.

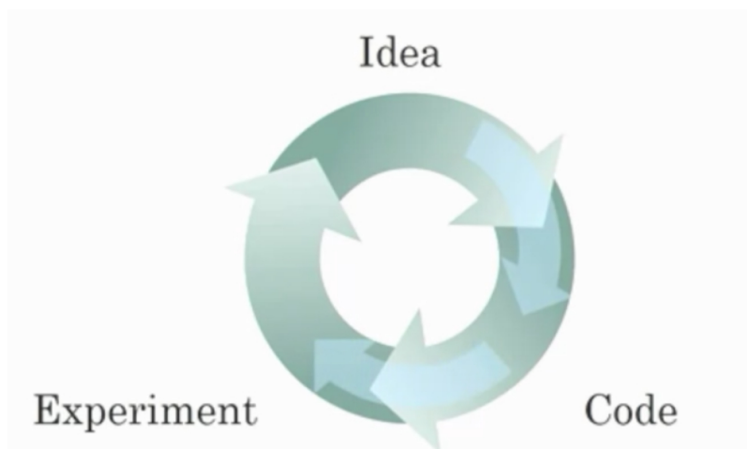
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✓ **Correct**

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



- ☐ Larger amounts of data allow researchers to try more ideas and then produce better algorithms in less time.
- ☐ Better algorithms allow engineers to get more data and then produce better Deep Learning models.
- ☒ 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.

- ☒ 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. When experienced deep learning engineers work 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

↗ **Expand**

✓ **Correct**

Yes. Finding the characteristics of a model is key to having good performance. Although experience can help, it requires multiple iterations to build a good model.

5. ReLU stands for which of the following?

1 / 1 point

- ☒ Rectified Linear Unit
- ☐ Rectified Last Unit
- ☐ Recognition Linear Unit
- ☐ Representation Linear Unit

↗ **Expand**

✓ **Correct**

Correct, ReLU stands for Rectified Linear Unit.

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.

7. Which of the following are examples of structured data? Choose all that apply.

1 / 1 point

☐ A dataset with short poems.

✓ ☒ A dataset of weight, height, age, the sugar level in the blood, and arterial pressure.

✓ **Correct**

Yes, this data can be presented in a table. This is an example of "structured" data.

☐ A set of audio recordings of a person saying a single word.

✓ ☒ A dataset with zip code, income, and name of a person.

✓ **Correct**

Yes, this data can be presented in a table. This is an example of "structured" data.

↗ **Expand**

✓ **Correct**

Great, you got all the right answers.

8. Why is an RNN (Recurrent Neural Network) used for machine translation, say translating English to French? (Check all that apply.)

1 / 1 point

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

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

✓ ☒ 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 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.

↗ **Expand**

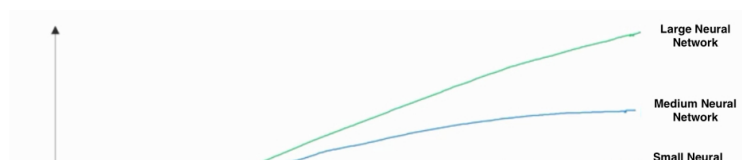
✓ **Correct**

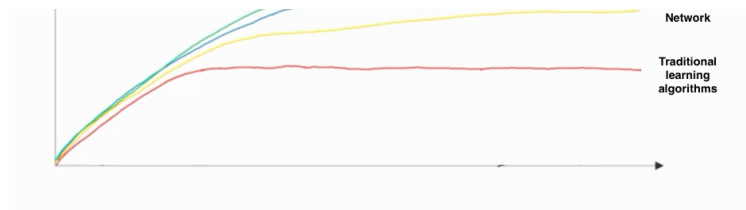
Great, you got all the right answers.

9.

1 / 1 point

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





- ☐ • x-axis is the performance of the algorithm
- ☐ • y-axis (vertical axis) is the amount of data.
- ☐ • x-axis is the input to the algorithm
- ☐ • y-axis is outputs.
- ☐ • 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.

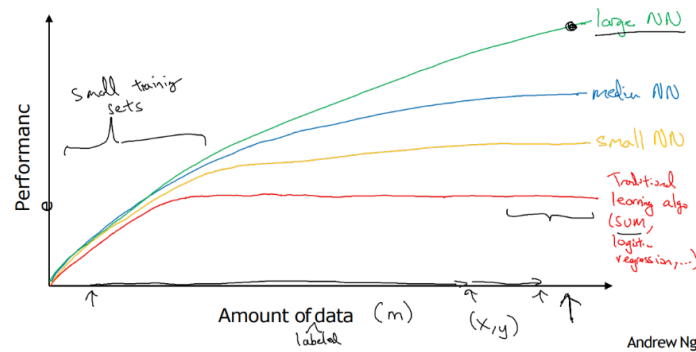
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✓ Correct

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

1 / 1 point

Scale drives deep learning progress



- ☐ Increasing the training set size of a traditional learning algorithm always improves its performance.
- ☒ 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.

- ☒ 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.

[Expand](#)

✓ Correct

Great, you got all the right answers.

