✓ **Congratulations! You passed!**

Grade received 80%   **Latest Submission Grade** 80%   **To pass** 80% or higher

[**Go to next item**]

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 the following play a major role to achieve a very high level of performance with Deep Learning algorithms?   `1 / 1 point`

☑ Large amounts of data.

> ✓ **Correct**
> Yes. Some of the most successful Deep Learning algorithms make use of very large datasets for training.

☑ 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.

☑ Large models.

> ✓ **Correct**
> Yes. In most cases it is necessary for a very large neural network to make use of all the available data.
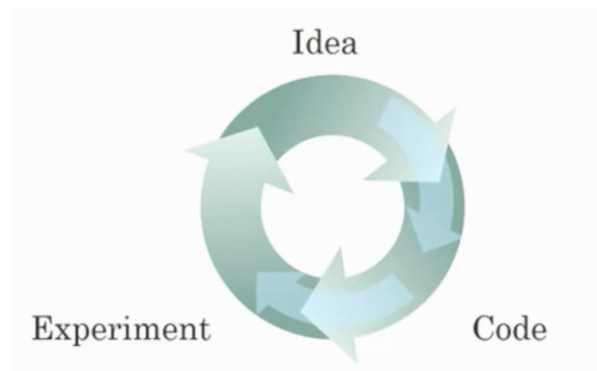
☐ Better designed features to use.

☐ Smaller models.

[⤢ **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`

☑ 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.

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

1 / 1 point

○ False

◉ True

[↗ Expand]

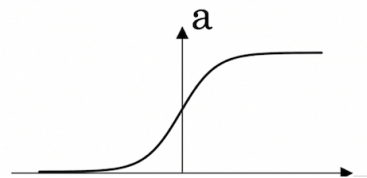✓ **Correct**
Exactly, with neural networks, we don't need to "design" features by ourselves. The neural network figures out the necessary relations given enough data.

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

1 / 1 point

◉ Figure 2:

[↗ 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.

0 / 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.

[↗ Expand]

✗ **Incorrect**
You didn't select all the correct answers

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7. A demographic dataset with statistics on different cities' population, GDP per capita, and economic growth is an example of "unstructured" data because it contains data coming from different sources. True/False?

0 / 1 point

○ False

◉ True

[↗ Expand]

✗ **Incorrect**
A demographic dataset with statistics on different cities' population, GDP per capita, and economic growth is an example of "structured" data in contrast 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 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).

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

☐ 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).
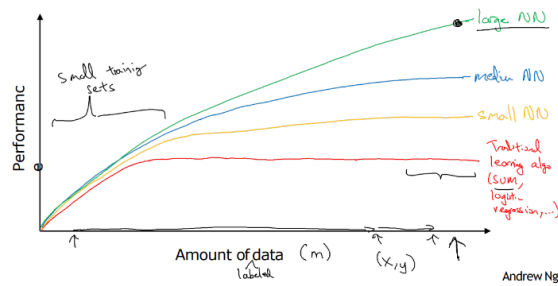
[↗ **Expand**]

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

9.

From the given diagram, we can deduce that Large NN models are always better than traditional learning algorithms. True/False?

◉ False

◯ True

[↗ **Expand**]

> ⊘ **Correct**
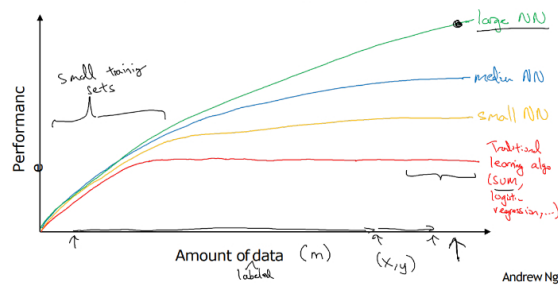> Yes, when the amount of data is not large the performance of traditional learning algorithms is shown to be the same as NN.

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.

☑ 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.

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

⤢ **Expand**

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

⤢ **Expand**

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

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

⤢ **Expand**