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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

- Neural Networks are a brand new field.
- 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.

- We have access to a lot more data.

 Correct

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

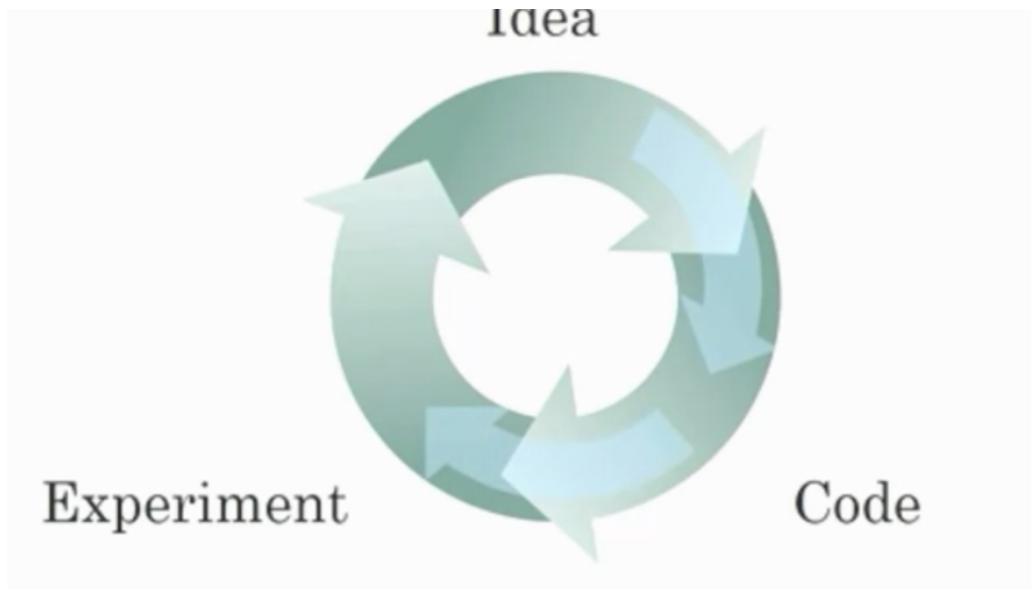
 Expand

 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



- 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.

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

Correct

Yes, as discussed in Lecture 4.

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

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

Correct

Yes, as discussed in Lecture 4.

Expand

Correct

Great, you got all the right answers.

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

True

False

Expand

Correct

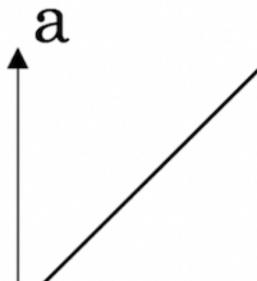
Exactly, with neural networks, we don't need to "design" features by ourselves. The neural network figures out the necessary relations.

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

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 chosen for the ReLU activation function helping with the training of NN.

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

1 / 1 point

Images for bird recognition.

Correct

Yes, images are an example of "unstructured" data.

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.

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. 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.

1 / 1 point

- The RNN requires a small number of examples.
- 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 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).

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

 Expand

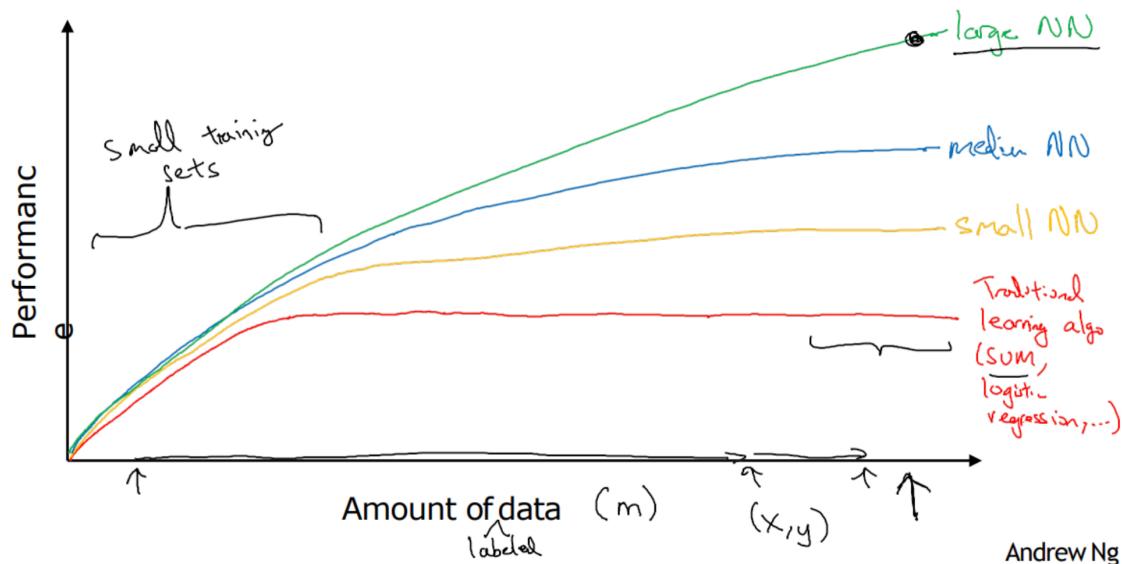
 Correct

Great, you got all the right answers.

9.

1 / 1 point

Scale drives deep learning progress



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

- True
- False

[Expand](#)

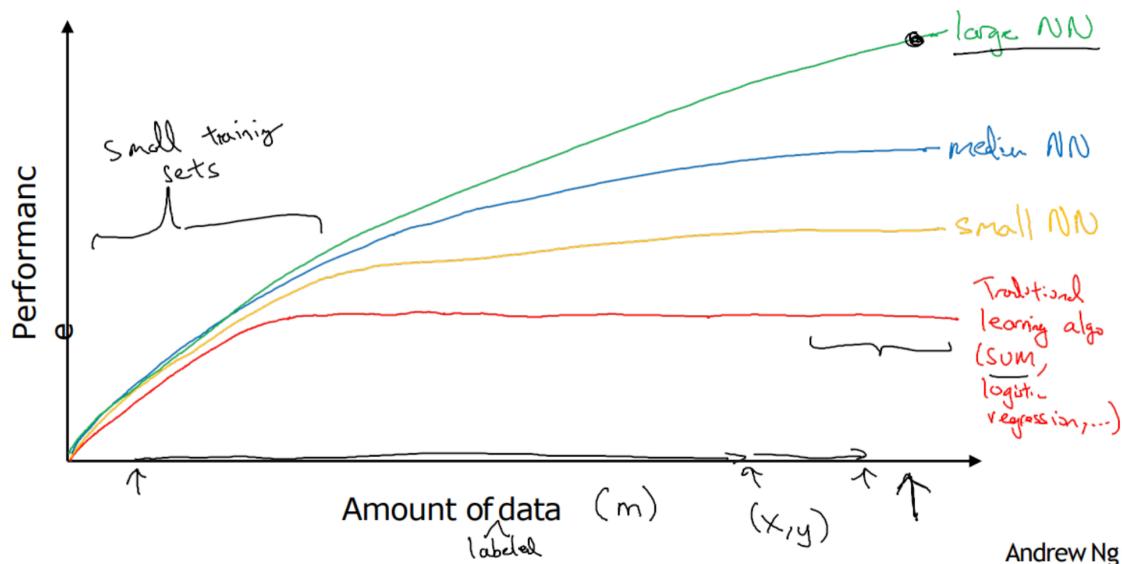
 **Correct**

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.

1 / 1 point

Scale drives deep learning progress



- 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 training set size of a traditional learning algorithm always improves its 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.

[Expand](#)

 **Correct**

Great, you got all the right answers.

