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

- (•) AI is an essential ingredient in realizing tasks, in industry and in personal life.
- ( ) AI controls the power grids for energy distribution, so all the power needed for industry and in daily life comes from AI.
- ( ) 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.

- [x] 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.

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

Correct
Yes, as discussed in Lecture 4.

Images for cat recognition is an example of “structured” data, because it is represented as a structured array in a computer. True/False?

- (•) False
- ( ) True

Expand

Correct
Yes. Images for cat recognition are examples of “unstructured” data.

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

- [ ] A set of audio recordings of a person saying a single word.
- [x] 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 dataset with short poems.
- [x] 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.

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

- [x] 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).

- [x] 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 is strictly more powerful than a Convolutional Neural Network (CNN).

- 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.

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

✓ Correct
Yes. Bringing more data to a model is almost always beneficial.

- [x] 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.

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?

- [ ] True
- [x] False

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
- [x] False