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Grade received 90% To pass 80% or higher

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Introduction to Deep Learning

Latest Submission Grade 90%

1. What does the analogy "AI is the new electricity" refer to? 1 / 1 point

- AI is powering personal devices in our homes and offices, similar to electricity.
- AI runs on computers and is thus powered by electricity, but it is letting computers do things not possible before.
- (selected) Similar to electricity starting about 100 years ago, AI is transforming multiple industries.

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.
- [x] We have access to a lot more data.

Correct
Yes, the digitization of our society has driven a lot of the recent progress in deep learning.

- [x] Deep learning has led to significant improvements in important applications such as online advertising, speech recognition, and image recognition.

Correct
These were all examples discussed in lecture 3.

- [x] 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.

3. Recall this diagram of iterating over different ML ideas. Which of the statements below are true? (Check all that apply.) 1 / 1 point

- [ ] It is faster to train on a big dataset than a small dataset.
- [ ] Neural Networks are a brand new field.

- [ ] We have access to a lot more data.

Correct
Yes, as discussed in Lecture 4.

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

Correct
Yes, as discussed in Lecture 4.

- [x] Recent progress in deep learning algorithms has allowed us to train good models faster (even without changing the CPU/GPU hardware).

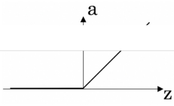
Correct
Yes. For example, we discussed how switching from sigmoid to ReLU activation functions allows faster training.

- True
- (selected) False

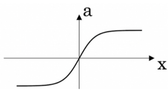
Correct
Yes. Finding the characteristics of a model is key to have good performance. Although experience can help, it requires multiple iterations to build a good model.

5. Which one of these plots represents a ReLU activation function? 1 / 1 point

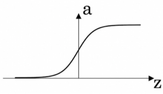
- (selected) Figure 3:



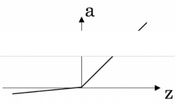
- Figure 1:



- Figure 2:



- Figure 4:



Correct
Correct! This is the ReLU activation function, the most used in neural networks.

6. Images for cat recognition is an example of "structured" data, because it is represented as a structured array in a computer. True/False? 1 / 1 point

- (selected) False
- True

Correct
Yes. Images for cat recognition is an example of "unstructured" data.

7. 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? 1 / 1 point

- True
- (selected) False

Correct
A demographic dataset with statistics on different cities' population, GDP per capita, economic growth is an example of "structured" data by opposition to image, audio or text datasets.

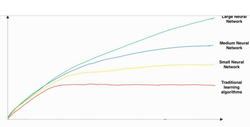
- [x] It is applicable when the input/output is a sequence (e.g., a sequence of words).

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

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

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



- 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

Incorrect

10. 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.) 1 / 1 point

- [ ] Decreasing the size of a neural network 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.

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