✓ **Congratulations! You passed!**
TO PASS 80% or higher

Keep Learning

GRADE
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Introduction to Deep Learning

LATEST SUBMISSION GRADE

100%

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

    1 / 1 point

    ○ AI runs on computers and is thus powered by electricity, but it is letting computers do things not possible before.

    ◉ Similar to electricity starting about 100 years ago, AI is transforming multiple industries.

    ○ AI is powering personal devices in our homes and offices, similar to electricity.

    ○ Through the "smart grid", AI is delivering a new wave of electricity.

    > ✓ **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

    ☑ 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 computational power.

    > ✓ **Correct**
    > Yes! The development of hardware, perhaps especially GPU computing, has significantly improved deep learning algorithms' performance.

    ☑ We have access to a lot more data.

    > ✓ **Correct**
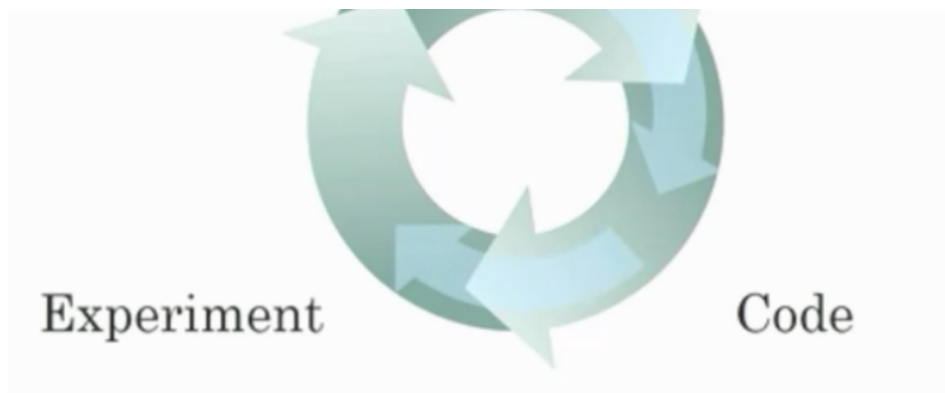   > Yes! The digitalization of our society has played a huge role in this.

    ☐ Neural Networks are a brand new field.

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

    1 / 1 point

Experiment   Code

☑ 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.

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

✓ **Correct**

Yes, as discussed in Lecture 4.

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

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

✓ **Correct**

Yes, as discussed in Lecture 4.

4. 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?　　　　　　　　　`1 / 1 point`
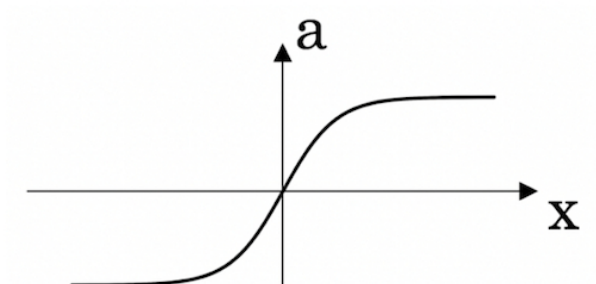
◉ False

◯ True

✓ **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.
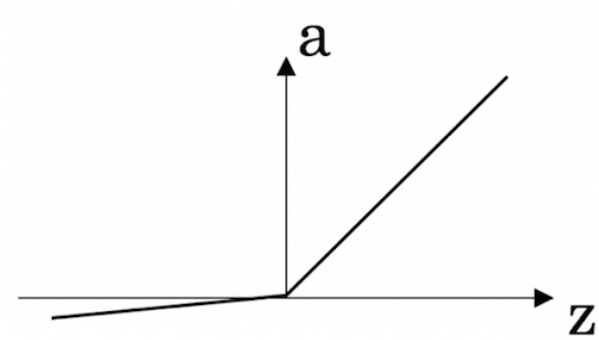
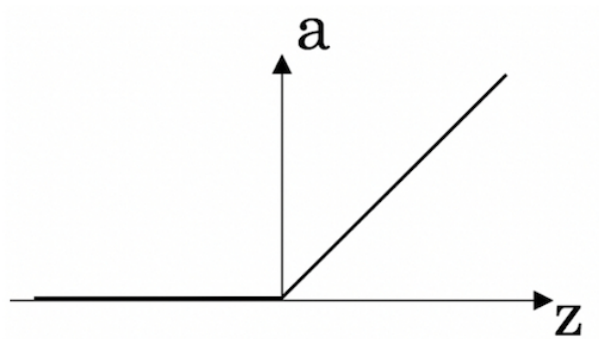5. Which one of these plots represents a ReLU activation function?　　　　　　　　　`1 / 1 point`
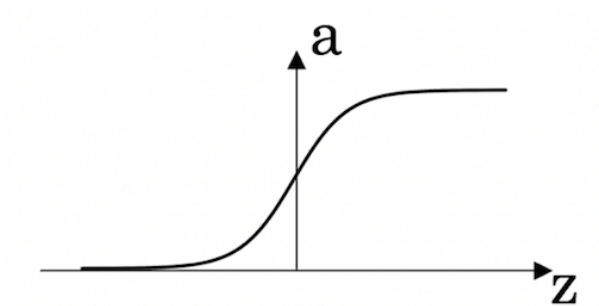
◯ Figure 1:

○ Figure 4:

● Figure 3:

○ Figure 2:

✓ **Correct**

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

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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`

● False

○ True

✓ **Correct**

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

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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`

● False

○ True

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 applicable when the input/output is a sequence (e.g., a sequence of words).

☑ It can be trained as a supervised learning problem.

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

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

9. In this diagram which we hand-drew in lecture, what do the horizontal axis (x-axis) and vertical axis (y-axis) represent?   **1 / 1 point**
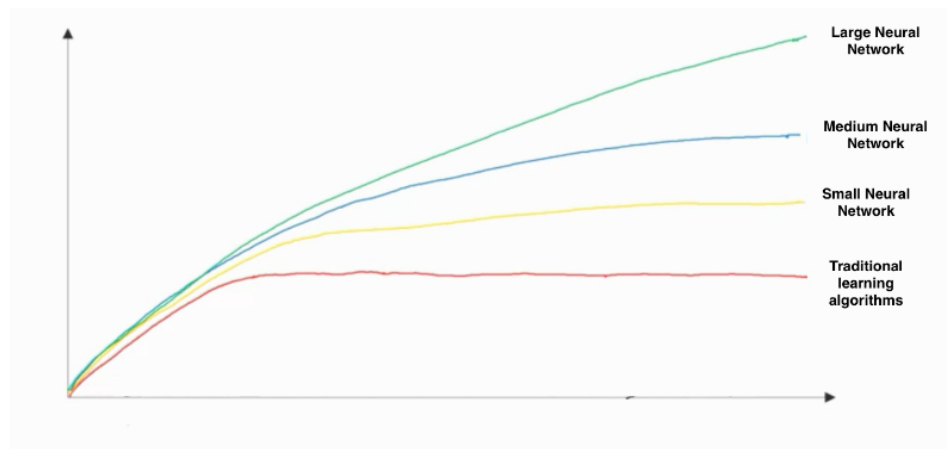
○ • x-axis is the performance of the algorithm
  • y-axis (vertical axis) is the amount of data.

○ • 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.

10. Assuming the trends described in the previous question's figure are accurate (and hoping you got the axis labels right)   **1 / 1 point**

☑ 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.

☐ Decreasing the size of a neural network generally does not hurt an algorithm's performance, and it may help significantly.

☑ 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.