

Week 1 - Introduction to deep learning

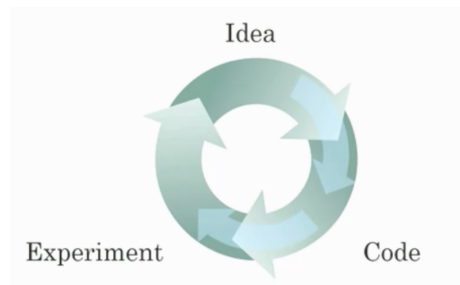
1. What does the analogy "AI is the new electricity" refer to?

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

2. Which of these are reasons for Deep Learning recently taking off?

Ans: 1. We have access to a lot more computational power 2. We have access to a lot more data.

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



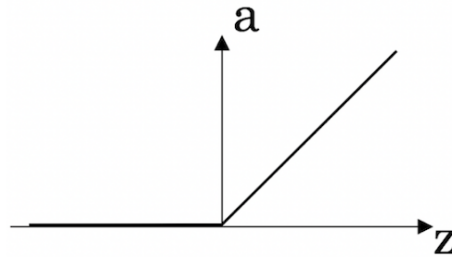
Ans: 1. Being able to try out ideas quickly allows deep learning engineers to iterate more quickly 2. Faster computation can help speed up how long a team takes to iterate to a good idea. 3. Recent progress in deep learning algorithms has allowed us to train models faster (even without changing the CPU/GPU hardware).

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?

Ans: False

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

Ans:



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

Ans: False

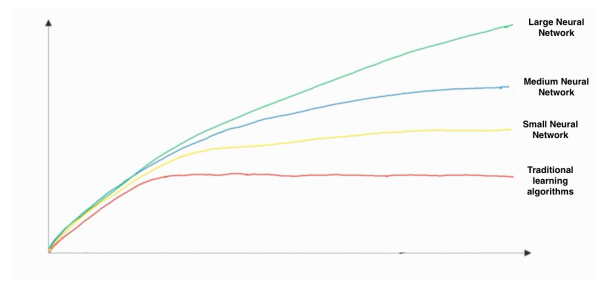
7. A demographic dataset with statistics on different cities’ population, GDP per capita, economic growth is an example of “unstructured” data because it contains data coming from different sources. True/False?

Ans: False

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

Ans: 1. It can be trained as a supervised learning problem. 2. It is applicable when the input/output is a sequence (e.g., a sequence of words).

9. In this diagram which we hand-drew in lecture, what do the horizontal axis (x-axis) and vertical axis (y-axis) represent?



Ans: x-axis is the amount of data, y-axis is the performance of the algorithm.

10. Assuming the trends described in the previous question's figure are accurate, which of the following are true?

Ans: 1. Increasing the training set size generally does not hurt an algorithm's performance, and it may help significantly. 2. Increasing the size of a neural network generally does not hurt an algorithm's performance, and it may help significantly.