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Week 10 – Task 1

DSSA – 5104 -091

Deep Learning

All in all, I believe that the lecture was just okay. It did tell me how neural networks are being used within our society and how even big companies are actually working together when it comes improving neural networks. It was a little complicated to follow at some points, however, other than that I liked the involvement the speakers had with each other and the questions that were discussed.

The first speaker, Steve Jurvetson, did a good job explaining neural networks explaining back propagation, the firing of neurons, talked about an activation and how you brute force solving the problem. He explained how deep learning has evolved from the 80s and how the learning rate changes depending on the data abstraction. He also explained that people should not be super excited about big data because, if we do not know a methodology to comprehend that big data, it is just that, big data. Finally, he explained the plain basis of a neural network which was to expose data to the network and then figure out how the neural network works. He said something that I really liked which was, “You don't tweak the end product you tweak the process of creation”.

The second speaker, Adam didn't seemed to prepared (nervous). However, explained what weights do in a neural network. He also gave an example that if you gave the neural network the picture of a car and get duck...you penalize the weights that did that and vice versa. Talked about image recognition (ImageNet). Showed the difference between traditional image recognition vs deep learning. Talked about Convolution Neural Network and how it succeeded in image recognition (which was interesting to watch). The convolution is basically a slider that has a particular image inside it and it moves around the image until it matches what it is looking for. He showed an example of the filters in the convolution NN and all the different layers that are a part of it. A quote that Adam said that I liked was the following, “Deep learning is forming that bridge between the physical world and computing”.

The third speaker, Naveen Rao, Nervana Systems, talked about how a brain works and how we can think about the fuzziness of it and the computations in general. Trying to link the brain (and how fast it does algorithms) to a piece of hardware/software.

The fourth speaker, Ilya Suyskever, Google Brain, work with neural networks and likes deep learning because it actually works...under certain circumstances (when we have a lot of input/output data).

The fifth speaker, Elliot Turner, AlchemyAPI would like to democratize deep learning into the worlds business problems. Customers care more about output than anything else.

Some of the questions the speaker asked were really good and wanted to record those down and the responses of the speakers.

1. What if companies use NNs and don't understand how they work at all?

    1st speaker - Thinks that companies should home on the topic.

    2nd speaker - Advantage for people who have more data. He didn't even answer the question. Points more to big company and smaller companies need to work harder.

    5th speaker - Thinks it is unlikely to happen because more people are getting more into it.

2. If you improve the general algorithms of deep learning, do you think it will help improve other deep learning models on different domains?

    3rd speaker- Explains how it is surprisingly nice that companies publish deep learning techniques that they use/make/modify.

    4th speaker – Believes that they will because they are domain independent and fairly independent in general.

In conclusion, the talk was okay, however, I feel like it was focused a lot business wise though. They did explain neural networks fairly well and how companies are working together when it comes to modifying neural network architecture.