What is a Deep Learning Algorithm?

Deep Learning Algorithms (DLA) are computer programs that can "learn" how to do what once were human-specific tasks, such as reading handwriting or interpreting speech.

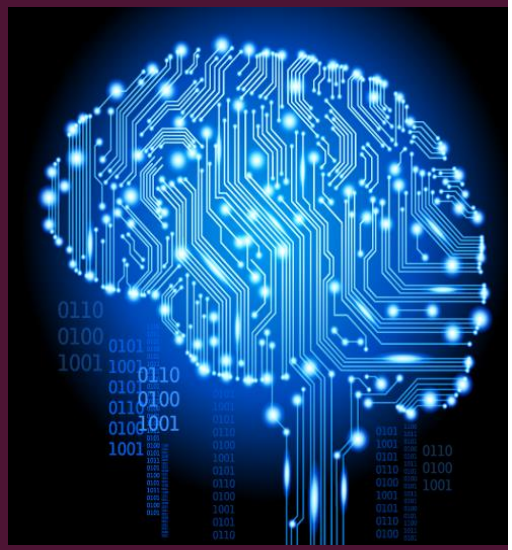

Figure 4: (Google Image Search for Deep Learning)

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Works Cited:

Google Images

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Deep Learning Algorithms

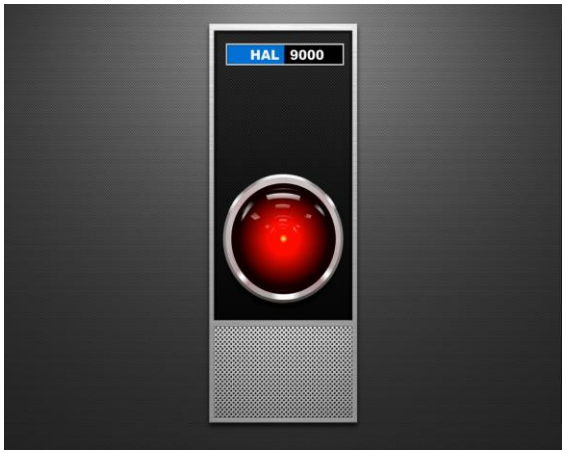

Figure 1: (Google Image search "HAL 9000")

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Figure 2: (Google Image search popular programs that use deep learning)

What can DLA do for you?

Not only can DLAs streamline tasks, but they can also improve the processing speed of your computers. When it comes to a specific task, there is a DLA that can be used. Not only are they versatile, but self-teaching! Coming closer to artificial intelligence than any program before, DLAs are the smart choice when it comes to human-computer interactions

Time is important!

Why waste valuable processing time with outdated programs that have to be hand-tailored to a specific task when DLAs can do the same job in less time and better than before? After a short learning and adjustment period, the DLA will perform its given functions seamlessly as it churns through the vast amount of data created and processed by your company.

How DLAs Operate

Writing a program that learns isn't easy. In order to do this, the most successful DLAs are based off of one of the most complicated learning machines on the planet: the human brain.

How DLAs think like us

One of the most common models for a deep learning network is the Convolution Neural Network. Taking inspiration from biological processes, namely sight, these networks seek to emulate and succeed in reproducing the behavior of the visual cortex. The procedure for this digital process is as follows:

1. "Convolve several small filters on the input image
2. Subsample this space of filter activations
3. Repeat steps 1 and 2 until you're left with sufficiently high level features
4. Use a standard Feed Forward Neural Network to solve a particular task, using the results features as input"

("An Introduction to Convolutional Neural Networks")

Simply put, in the feature below, take a sample, observe features, sample the sample, identify key features, repeat until you are satisfied with the level of identified features, then apply an algorithm that classifies the data that's been processed.

The applications for DLA are near endless, with the most common uses being voice/facial recognition software (utilized by Siri, Cortana, and Facebook), reading handwriting (USPS), and winning Jeopardy (yes, IBM's Watson uses DLAs).

Why DLAs matter

Even though this field is still relatively young, it has shown great promise in revolutionizing how we handle the computing of large sets of information and glean useful data from them, such as patterns and correlation between topics. Several industry giants, namely Apple, Google, and IBM are actively and successfully pursuing the development of more complex and intelligent programs, so now is the time to start investing in this industry-changing technology lest we as a company fall behind.

How to get started

While the actual process itself may seem complicated, there are plenty of resources available to begin development of DLAs. After all, DLAs are but a digital reconstruction of the human mind, and one of the best models for it as well.

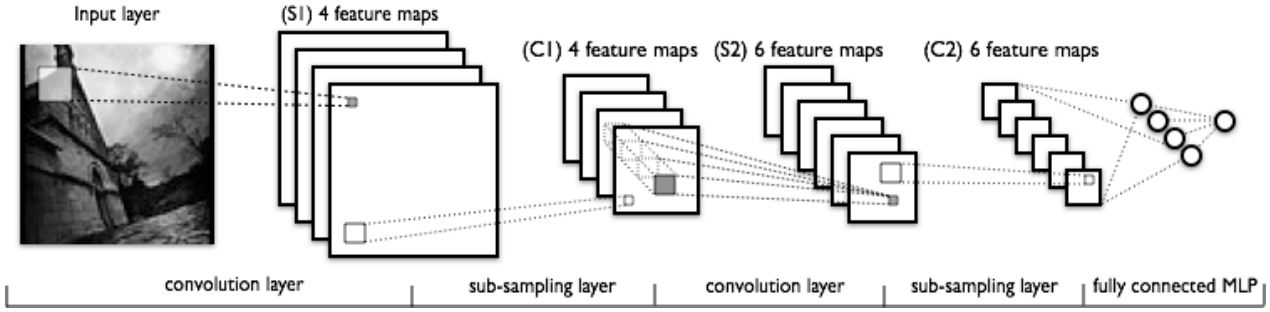

Figure 3: ("An Introduction to Convolutional Neural Networks")