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**Overview of NLP**

Natural Learning Processing is the discipline in which engineers develop machines to process human language and respond back directly. Natural learning processing and machine learning are both powered by Artificial Intelligence and have many similarities between the two disciplines. Natural language understanding and natural language generation are subsets of NLP. NLU has the computer analyze text to derive meaning from it. NLG on the other hand is more focused on the writing of text from the computer. Some popular examples of natural learning processing are Apples' Siri, predictive text on Google, and email filtering.

There are three main approaches to NLP. The discipline started with rules based processing in the 1960's. This approach focuses on picking out words through large amounts of text and deriving meaning through the computer. Usually these algorithms are designed with internal rules that must be followed. These rules tell the system how to understand the text being fed to the computer. This unfortunately results in them not being very precise. Context free grammar is an example of this, as well as a standard spell check system.

Another approach is the statistical and probabilistic method. This requires a decent amount of data and good processing power to achieve. These algorithms will try to pick out patterns within the large amount of text and use that analysis to come up with meaning for the user. This can come in the form of guessing the next word or assigning a category to the data. Some examples of this can be found in use of word frequencies as well as more traditional machine learning algorithms.

The most recent approach started a little over a decade ago and is known as deep learning. This is similar to the previous statistical and probabilistic approach but these networks will update on themselves instead of relying on feature engineering. Parameters are fed into the system and are constantly fed into these networks. These systems require a large amount of data to work as well as powerful processing. Speech recognition is a popular example of a complex NLP program that implements this deep learning method.

I chose to study this discipline as the premise alone seems like such an impossible challenge worth attempting. There are so many complexities within human languages that just seem impossible to translate over to a machine and have it respond with actual precision. As someone who works with machines in every part of my life, I notice how much more efficient daily activities can be if there was an easier way to communicate with computers.