NLP

So what is NLP? Natural Language Processing! It mainly involves the construction of computational algorithms that can process and represent human language. A more recent and well known use is Amazon’s voice assistant Alexa.

Brief history of NLP

Arguably first major advancement was the birth of Colossus, the computer created by Sir Alan Turing. This machine was designed to crack the messages encoded by the German Enigma machine. It was with the threat of nuclear war after WWII that NLP developed further. This involved the creation of automated translation of Russian test to English.

The early methods during the 1950s involved using language rules, computational linguistics and statistics. Coming towards the end of the 20th century, methods developed to Corpus based statistics. This method looked at using statistics including normalised frequency and type-token ratio. A token is an instance of a wordform in the text. By examining the ratio of the number of types of token by the total number of tokens gives a measure of the range of vocabulary used in the text. These statistics were then used in significance tests with adjacent words and collections to see particular words had similar statistics in a different reference text. Depending on the significance of the result, a keyword could then be extracted.

Since then, methods have progressed using Supervised Machine learning and Deep learning, what is used today. Supervised Machine Learning involved using decision tree learning to output different words depending on their choices in the tree.

What is not more commonly understood by NLP, is that the subject also involves processing Speech and other forms of language, for example processing sign language, and even outputting language having interpreted speech. More technically, NLP systems understand Natural Language, execute requested tasks and produce Natural Language.

Some general tasks that NLP does:

**Mostly Solved:**

Spam Detection:

(/ Spam diagram here/)

Part-of-Speech (POS) tagging:

(/ POS diagram here/)

Named Entity Recognition:

(/ NER diagram here/)

**Making Good Progress:**

Sediment analysis:

(/ SedimentAnalysis Diagram here/)

Conference resolution:

(/ ConferenceResolution diagram here/)

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