

Natural Language Processing Overview

Natural language processing (NLP) is a subset of artificial intelligence (AI) and it deals with having computers understand text and words spoken to it like a human would. AI is a broad category that includes NLP. AI refers to when a computer is able to perform tasks that usually requires human knowledge or intuition. Thus, NLP falls under that category because a computer that is able to understand human speech and text will allow it to better emulate human knowledge and intuition. Natural language understand is a subset of NLP and it uses syntax and semantic analysis to fully understand text, while natural language generation is another subset of NLP that deals with a computer generating a human-like response to some data. Some examples of modern NLP applications include smart home assistants like Alexa, email filters, translators, and predictive text.

There are 3 main approaches to NLP. The first approach is a rules-based approach. This approach makes a computer follow human-made rules on data, thus, giving it the appearance of a machine that is intelligent. Some examples of this approach are spell checkers and context-free grammars.

Another main approach to NLP is a statistical and probabilistic approach. This approach requires a much larger dataset but uses probabilities and statistics to generate a possible outcome. Some examples of this include traditional machine learning algorithms and use of word frequencies.

The last main approach to NLP is deep learning. Deep learning uses something called neural networks to attempt to simulate a human brain. The data goes through these neural networks and learns or improves itself as more data is ingested. Some examples of deep learning are self-driving cars and credit card fraud detection.

NLP is a fast growing and relevant topic that is having a major impact on our daily lives. I am personally interested in NLP because it has so much potential to improve our daily lives. I would like to learn more about NLP so that I can possibly help others improve their daily lives.