

Overview of NLP

Natural language processing (NLP) is a part of artificial intelligence that enables a computer program to comprehend human language as humans do.

It has been used in various real-world applications like medical research, search engines, and business intelligence for about 50 years.

Like humans that use ears and eyes to hear and see and the brain to process the input, computers use different sensors and programs to process their respective inputs.

Input will be converted into text-prepared and cleaned data for machines to analyze (*data preprocessing*). Once the data is prepared, an *algorithm* is developed to process it.

Currently, NLP approaches focus on deep learning, using patterns in data to increase a program's comprehension. Deep learning is a type of AI that uses an NLP algorithm to train on relevant correlations in a huge amount of labeled data.

In previous approaches, there were specific words and phrases that machine learning algorithms would use to find in a text and give specific responses when those phrases appeared.

Natural language processing applies algorithms to comprehend the meaning and structure of sentences:

- **Natural language understanding**
 - Obtaining the definition of a word based on context.
 - Defining words that can be categorized into groups.
- **Natural language generation**
 - Defining semantics behind words and generating new text.

Applications of modern NLP:

- Talent recruitment in human resources
- Analyzes social media reviews by AI to analyze customer feedback
- automatic translation like Google Translate.
- Chatbots

NLP can improve the way humans and computers communicate which can help to:

- Producing more accurate and efficient documentation,
- Creating a summary of a larger, more complex original text,
- Personal assistants like Alexa.
- Providing advanced insights from analytics that were previously unreachable due to data volume.