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Overview of NLP

Define NLP

NLP stands for Natural Language Processing. This allows a computer to understand and process the natural human language.

Relation between AI and NLP

NLP is a component of AI(Artificial Intelligence). AI is used for various purposes, from helping use code, automating processes, translate languages, and much more. Many AIs need to take in natural language as input from humans and to convert the natural language to tasks for the AI to do we use NLP.

Natural language understanding and Natural language generation

When humans talk, we do 2 things, understand, and speak. Similarly for a computer they need to understand and talk to us. This is where Natural Language Understanding (NLU) and Natural Language Generation (NLG). These are components of NLP. NLU is for a computer to understand what the user is saying, and NLG give the computer the ability to reply.

Examples of modern NLP application

Most commercial AI that is able to take human input via voice or text uses NLP. Our personal assistants like, Google, Siri, Alexa, Text Analyzer like Grammarly, Auto correct, auto complete, Language translators, Email filtering and so much more.

3 main approaches of NLP

NLP can be done in various ways but there are mainly 3 approaches for using NLP:

1. Rule based approaches (1960s) – This is the earliest form of using NLP. They are given a set of rules to follow and apply when asked to. If we want to capitalize all the first letters of a sentence that can be done simply by making that a rule and applying, it. It can apply the rules when typing too. Example, Eliza chatbot that was able to somewhat understand and reply using the proper grammar structure. In this case the grammar structure are the rules it had to follow when generating a sentence.
2. Statistical and Probabilistic approaches (1980s) – This method counts words and sequences of words. By doing so it can make assumptions on what to do or expect next, but it needs a lot of data to do it optimally. Example, autofill in web search.
3. Deep learning (2010s) – This method relies on huge amount of data and processing power. It uses neural networks to get the results. Example, driverless vehicles, Facial recognition, virtual assistant, etc.

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Personal interest in NLP

NLP has opened a new area to me. The more I learn about it the more possible applications I can think of. Data is the bread and butter for any application and managing that data using NLP will help me sort through the unnecessary data. Furthermore, I now have a personal project/application in mind that will be able to read the “Readme.md” on GitHub and make a GitHub page for it that will use the keywords from the “Readme.md”. As I learn more, better ideas will come to mind and help me use it my personal and professional projects.