

Overview of NLP

- a. NLP is a field that focuses on interaction between computers and human and allows for computers to learn and interpret human language.
- b. The relationship between AI and NLP is that NLP is a branch of AI in which NLP helps machines improve in comprehending, understanding, and generating human language through speech and text.
- c. Natural language understanding means that each party understood what the other person said, and natural language generation is the formation of spoken responses.
- d. Some examples of modern NLP applications are language translation where a language such as English is translated to Spanish. Another example is Amazon Alexa where you can say or ask the speaker something and Alexa will do or answer in response. Lastly another example is an online customer service assistant or chatbot such as the one used on the Amazon web store.
- e. One of the main approaches to NLP are Rules-based approaches. Rules-based approaches are the oldest techniques and utilized regular expressions and context-free grammars to generate correct sentences in the output. An example of an application using this approach was Eliza using regular expressions to respond to a user.

Another approach to NLP is statistical and probabilistic approaches. This is a mathematical approach that worked in finding better ways to output something using probabilistic methods. For example, when you are trying to search for something, the search engine will pop up suggestions and likely pop up a suggestion that is close to what you are looking for. This method is used for moderate to large amount of data is used for learning.

Lastly, the third approach to NLP is Deep learning which is evolved from neural networks with large data availability and large amount of processing power. It is the most recent and modern way of approaching NLP and is used to train from large amounts of data.

- f. My personal interests in NLP is to learn how the process works in giving machines knowledge of the human language and how to build personal projects with it. I would love to learn how to build bots or scripts that can do things like sentiment analysis in the world. My personal interests in learning more about NLP also come from the rise in popularity of AI, ML, and NLP.