

Overview of NLP

a. define NLP in your own words

- NLP is a branch of Artificial Intelligence. NLP is creating algorithms for humans to be able to process human language. NLP allows computers to understand written text and spoken words the same way a human can.

b. describe the relationship between AI and NLP

- The relationship between AI and NLP is that they work hand in hand. In order for NLP to work it needs Artificial Intelligence. NLP is a subfield of Artificial Intelligence.

c. write a sentence or two comparing and contrasting natural language understanding and natural language generation

- Natural Language Understanding (NLU) means that each party understood what the other said. Natural Language Generation (NLG) is the formation of spoken response. NLU is the process of generating text that looks like it is written by a human, without the need for an actual human writing it versus NLG which produces written or spoken narratives using a data set.

d. list some examples of modern NLP applications

- Language Translator
- Siri, Alexa, Ok Google
- Amazon (getting insight from searches. Recognizing key phrases, entities, language, etc.)
- Marketing and Advertising (profiling customers)

e. write 3 paragraphs describing each of the 3 main approaches to NLP, and list examples of each approach

Rules-based approaches are the oldest of the approaches in NLP. The example of context-free grammar lists production rules for sentences. These production rules could be used either to generate syntactically correct sentences or to check whether sentences have the right grammar.

Statistical and probabilistic approaches use learning how humans type and predict what they are trying to say based on past patterns. As we see from the search bar when typing on the keyboard you are able to use suggestive typing and create whole sentences, the more common use of NLP for such a feature is spell check.

Deep learning has evolved from neural networks when large amounts of data became available, and processing power increased through GPUs and cloud computing. This is what AI machines such as Siri and Alexa use when updating how they talk and how it more and more feels like human interaction.

f. write a paragraph describing your personal interest in NLP and whether/how you would like to learn more about NLP for personal projects and/or professional application

I am very interested to see and learn about NLP. I think it is a very cool concept in the study of computer science. I feel that more and more technologies are implementing NLP and it is very exciting to see where that will take us in the future. I am a person who loves learning about language and loves to learn about interaction and specific dialects. I also love computer science so it's only natural to combine the two. The idea of making it easier for people to live and interact efficiently is a cool thought. I would like to complete different projects using NLP and see how it is actually structured and implemented in a program.