

Overview of NLP

- A. Define NLP in your own words

NLP is a field concerned with enabling computers to understand spoken and written human language, the same way a real human can.

- B. Describe the relationship between AI and NLP

NLP is a subset of AI.

- C. Write a sentence or two comparing and contrasting natural language understanding and natural language generation

Natural language understanding refers to computers understanding the meaning of human language extracting meaningful data from it, whereas natural language generation refers to text generation from data the computer has access to.

- D. List some examples of modern NLP applications

Alexa, Siri, chatbots, resume parsers, and spam filters.

- E. Write 3 paragraphs describing each of the 3 main approaches to NLP, and list examples of each approach

Rules-Based: these approaches use rules encoded in a program to understand human text. However, it is impossible to encode enough rules to compensate for the complexity of human language. Therefore, only basic applications can be created from rules-based approaches, such as spell checkers.

Statistical and Probabilistic: slightly more advanced than rules-based approaches, these approaches have computers learn from a corpus of data using traditional machine learning algorithms. However, these algorithms cannot do much besides checking word frequencies and other simple tasks. Also, they require a lot of data and processing power.

Deep Learning: the most recent type of approach, deep learning can perform complex tasks such as language translation, language understanding, language generation, etc. However, just like statistical and probabilistic approaches, a lot of training data and processing power is required.

- 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

As a data science major, NLP is extremely important for me to learn, as I will likely encounter it in a job. Additionally, I would love to work in a job that involves NLP after graduation, as giving computers the ability to understand human language is fascinating.