Overview of NLP

A. I would define NLP as a computer program allowing the machine to understand/process human language, either written or verbally.

B. The relationship between NLP and AI is that NLP is a subfield of AI, where AI is an umbrella term for a program that processes like a human, and a NLP program is one which focuses on processing human language. NLP utilizes AI to accomplish this.

C. Natural Language Understanding is the ability to understand human language as input, while Natural Language Generation is the ability to formulate correct human language as output.

D. Some modern NLP application include virtual assistants such as Amazon Alexa and Google Home, translators such as Google Translate, and email spam detection software.

E. The first of the 3 main NLP approaches is rules-based approaches. This is the oldest of the NLP approaches, and basically is exactly what it sounds like. The program creates rules that break down human language in a way that is easier for the machine to understand. A popular example of this is Eliza, a program that used RegEx to communicate with the user.

   The next approach to NLP is the statistical and probabilistic approach. This approach used probability and mathematical models to identify and predict patterns of words. An example of this type of approach is Google search bar, as the program will predict what you are trying to search and give suggestions based on patters of previous/trending searches.

   The third approach to NLP is deep learning. This approach is based off neural networks, using large amounts of data to make NLP programs act as human as possible, as they have access to large databases of human language examples. An example of deep learning NLP is Amazon Alexa.

F. My personal interest in NLP stems from a robotics camp I attended at the University of Texas as a Sophomore in high school. I got to witness many robots in development that were capable of NLP, and it truly amazed me. I am very interested in learning more about AI/NLP and would love to make it a career one day.