NLP is a subset of computer science which allows programmers to program computers to understand text and speech like humans. It combines things such as linguistics with machine learning and deep learning. NLP is a subset of AI as AI encompasses all tasks that can give a machine intelligence while NLP focuses on speech. Natural language understanding requires the machine to understand things such as a person's accent, grammar, and intonation. Natural language generation is the opposite, as it requires the machine to understand information that it can then translate into text. Modern NLP applications are chatbots, voice assistants, and language translators.

The first NLP approach was the rules-based approach. It would involve encapsulating a language in rules, using things such as context-free grammars and regular expressions to talk to the user. An example of this was the chatbot Eliza. Eliza used rules-based approaches such as regular expressions to echo talking points back to the user. When it couldn't come up with a response, it submitted a canned response to the user.

The second NLP approach was the statistical and probabilistic approaches. These involve mathematical approaches to text. Finding probabilities and sequences led to language models, which can be used for predictive text. Statistical approaches also include machine learning algorithms such as support vector machines and decision trees, and work well on medium to large data sets. An application of this approach could be a more sophisticated chatbot which uses a language model to formulate more appropriate responses than the rules-based approach model.

The third NLP approach is deep learning. It can be used on a large-scale when large amounts of data is available and processing power is increased through GPUs and cloud computing. Its goal is to make AI's sound like humans and thus has to consider the context of the situation and remember previous information. An application of deep learning is Alexa or Siri, which can understand the user and have a human-sounding conversation with them.

My personal interest in NLP is that I would like to learn how to create a chatbot and use machine learning to process text. I am interested in machine learning and thus would like to learn more about NLP so I can create my own chatbots and speech processing models. I think that NLP will continue to grow in importance in the future so I think that it will be a very useful field for me to get experienced in.