

Overview of NLP

NLP, or Natural Language Processing, is the crossroads between computer science and the human language. It encompasses many fields of study from both topics such as AI, speech patterns, and language translation. NLP and AI have an interesting relationship, where one field cannot continue to grow and expand without the other. The advancements in NLP have allowed humans to talk to machines and have the machine understand their words while the advancements in AI and machine learning has allowed NLP machines determine meaning and intent behind the human language. In the same way humans listen first and learn to talk, computers now have the ability to respond through the use of natural language generation. This is similar to natural language understanding but distinct because the machine makes its own catered response based on what input it receives, thus lighting the spark of conversation.

Approaches to NLP

There are currently three main approaches to the field of NLP, the first of them being the rules-based approach. In rules-based approach, the machine will usually have a table of set responses it can say and will decide which predetermined outcome it gives based solely on what the human inputs. Some examples of this type of approach are spell check programs, and the Eliza chatbot.

The second approach is the statistical and probabilistic approach, which breaks down input into statistics and data about the input. These machines can see how many times each word was used and what the likelihood of certain words appearing will be. An example of this approach is found in more traditional machine learning algorithms.

The last and most recent approach is the deep learning approach in which computers will take input and compare it with an enormous amount of data to figure out a good interpretation of what it could mean. This approach is certainly the most interesting but also the most difficult to achieve for anyone outside of large companies. An example of this is the AI website that turns things you type into artwork by consulting millions of images on the internet.

My interest in NLP

After taking an interesting AI course in a previous semester, I felt the obvious next step was to learn how machines can communicate with humans through the human language. I wish to learn more about NLP and how artificial intelligence uses natural language generation and the three NLP approaches to have unique interactions and conversations with people. Overall I

believe this course will be fun and thought provoking while still providing me with valuable computer science skills for my future career.