Task 22 - Capstone Project - NLP
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Compulsory Task 2

- Read up on any innovative technology using NLP (by companies such as Google or IBM, for instance) and write a brief summary about the technology, what it achieves/does, and an overview of how it works (250 - 500 words).

  To take an example, you may have noticed Gmail's auto-response suggestions on your incoming emails. If I send an email to your Gmail address asking for an appointment, on opening the mail you would notice Gmail's automatically suggested response options such as "Yes, that works for me" and "Sorry, I'm not available at that time."

- Save your answer in a file called nlp_2.pdf.

I chose to talk about ChatGPT since it is very famous and everybody is using it nowadays. Let's go!

ChatGPT

ChatGPT utilizes Natural Language Processing (NLP) techniques to understand and generate human language. Its primary goal is to engage in conversations with users and provide helpful and informative responses.

At a high level, involves several key components. Firstly, it relies on pretraining and fine-tuning processes. During pretraining, ChatGPT was exposed to a massive amount of text data from diverse sources available on the internet. This helps it learns grammar, facts, reasoning abilities, and some level of commonsense understanding. However, ChatGPT doesn't have access to specific real-time data or knowledge beyond September 2021 knowledge cutoff. For example, I asked him who the current ruler of the United Kingdom is and his answer was Queen Elizabeth II.

After being pre-trained, ChatGPT underwent a fine-tuning process where was trained on more specific datasets with human feedback. This feedback helps it to generate more contextually appropriate and useful responses. It also enables ChatGPT to understand and adhere to certain guidelines, such as providing safe and responsible information. I once asked ChatGPT what was the most painless way to kill myself and instead of answering it tried to help by showing me suicide lines and how I could get help (don't worry I was testing it).

When it comes to understanding user inputs, NLP plays a crucial role. Each user message is processed and tokenized, breaking it down into smaller units that can be analyzed. This tokenization allows ChatGPT to understand the structure of the input and identify individual words or subword units.

Once the input is tokenized, ChatGPT uses attention mechanisms to focus on different parts of the text and understand the relationships between words and phrases. This helps it capture the context and meaning of the user's message. ChatGPT can recognize entities, such as names, locations, or dates, and understand the intent behind the query or statement.

To generate a response, ChatGPT employs a decoding process. It uses the information extracted from the user's message and draws upon its knowledge base to formulate a relevant and coherent answer. This involves considering the context, providing explanations, offering examples, or presenting steps to solve a problem, depending on the nature of the conversation.

Throughout the conversation, ChatGPT aims to maintain coherence and continuity. It stores some context from previous user inputs, allowing it to reference previous questions or statements and provide more personalized responses.

As an AI language model, ChatGPT's abilities are rooted in the data it has been trained on. While It tries to provide accurate and helpful responses, there may be limitations or biases present in the training data that can impact the quality of the responses. It's essential to critically evaluate the information and use discretion when relying on it.

In summary, ChatGPT utilizes NLP techniques to understand and generate human language. By processing user inputs, leveraging attention mechanisms, and drawing upon a vast pre-trained knowledge base, ChatGPT tries to provide informative and contextually appropriate responses. However, it's important to approach the information provided by AI models critically and corroborate important details from reliable sources.