Natural Language Processing

Overview

Natural language processing (NLP) allows computers to comprehend and communicate with humans through both speech and writing. By manipulating unstructured data, such as written and voiced words, computers can use NLP to understand the meaning of what a human tells it. Then it can respond to the human in a conversational fashion. Experts in fields such as artificial intelligence, statistics, computer science, and even linguistics are needed to develop NLP programs (Techopedia, 2021).

Countless amounts of text data are generated each day through texting apps, social media apps, forums, etc. Humans are great at analyzing the meaning behind text, but it would be impossible for us to analyze billions of sentences each day. Machines, on the other hand, do not experience fatigue, so a machine with advanced NLP capabilities can analyze in minutes what would take humans years (Lee, 2019).

Course Concepts

The importance of NLP stems from the fact that it can account for the infinite ways humans express themselves through thousands of languages, dialects, slang, accents, typos, abbreviations, etc. Text and audio are types of unstructured data, which is abundant across organizations (SAS, n.d.). However, in MIS 2502 we learned that data needs to be at least semi-structured to be manipulated in a meaningful way. Semi-structured data is common for practical use, and datasets usually follow semi-structured formats. NLP provides a way to convert unstructured text and audio data to a numeric structure, attempting to resolve the endless ambiguity in speech and text (SAS, n.d.).

Example

Prudential consultants and their customers are already reaping the benefits of NLP. Tracking a customer's data, such as policy cash value, premium due date, etc. has traditionally been time consuming. However, due to advancements in NLP, financial consultants can now query a chatbot and gather the information they need within seconds. This does not only provide customers with quicker advice from their consultants, but it allows the consultants to spend more time on higher-value tasks (Prudential, n.d.).

Conclusion

Big data will reshape and improve the world beyond our current comprehension. NLP is key to democratizing this shift, as it allows anyone to communicate with a program that has access to extensive data. Consultants at firms like Prudential have already begun harnessing big data without needing any data science background, thanks to NLP. Through NLP, we can finally bridge the linguistic gap between humans and computers, making data easily accessible for anyone.

References

Askpru chatbot makes serving customers a lot easier for financial consultants. Prudential Singapore. (n.d.). Retrieved December 4, 2021, from https://www.prudential.com.sg/innovation/askpru-chatbot.

Lee, A. (2019, December 11). *Why NLP is important and it'll be the future - our future*. Medium. Retrieved December 4, 2021, from https://towardsdatascience.com/why-nlp-is-important-and-itll-be-the-future-our-future-59d7b1600dda.

Techopedia. (2021, November 4). *What is Natural Language Processing (NLP)? – definition from Techopedia*. Techopedia.com. Retrieved December 4, 2021, from https://www.techopedia.com/definition/653/natural-language-processing-nlp.

What is natural language processing? SAS. (n.d.). Retrieved December 4, 2021, from https://www.sas.com/en_sg/insights/analytics/what-is-natural-language-processing-nlp.html.