Natural language processing (NLP) is a subfield of computer science, information engineering and artificial intelligence that attempts to understand and utilise information given by humans through text or speech. NLP can be used in a variety of ways, these include, but are not limited to, recognition of speech for the purposes of translation and conversion to text, analysing texts to produce content such as news articles and extracting purpose and meaning of words through the understanding of context.

NLP is already present in our everyday lives. They can take the form of assistants; Amazon Alexa, Google Assistant and Microsoft’s Cortana. It also resides in word processing applications to correct user’s grammar and spelling. In email applications NLP can detect specific elements of text like dates and times so they can be added to calendar applications.

IBMs Watson is one example of an artificial intelligence (AI) program that uses NLP. It can answer questions consisting of context clues. Since winning the IBM Challenge on the American gameshow Jeopardy! in 2010, Watson went on to be used in commercial applications. The first of these began in 2013 in collaboration with health insurance provider Anthem (at the time Wellpoint) as an advisor to healthcare professionals. (Upbin 2018).

Googles Dialogflow is used to power Google Assistant and Amazon Alexa. It uses machine learning; a technique used to teach an AI program by feeding it vast amounts of data and judging what the AI produces in response; teaching right from wrong. It is used to recognise a user’s voice and use their vocal input to perform actions like creating calendar dates, reading weather forecasts and converting a user’s speech to text. (Google n.d.)

A popular form NLP takes is that of a chatbot. These bots are used primarily used in a business context as customer service representatives. There are programs that already exist that automate some aspects of customer service, such as a program that asks the customer to input certain information like a key press to, for example, transfer their call to a certain department. However, chatbots can understand customers intentions by extracting meaning from the context of the user’s input without the need for hardcoded responses.

Jobs such as call centre workers and customer service representatives are affected. As these types of chatbots become more advanced these workers may find their jobs partially or fully automated. This will be particularly felt in developing countries, such as India and The Philippines. (Baraniuk 2018)

However, before then, chatbots can be used to assist these workers by parsing information to guess intent and pick out relevant information. One such system (Observe AI) which aims to help call centre workers by providing information and responses based on their customer emotional state. Allstate use the chatbot Amelia to reduce the time spent on individual customer queries by highlighting trends and important data points. (Morgan 2018)

A more malicious way chatbots can be used is to disseminate and promote disinformation (Stella, Ferrara & De Domenico 2018). Social media companies like Facebook and Twitter have had some successes in dealing with bot operated accounts. In late 2018 Twitter removed an estimated 10,000 automated accounts were suspended. These accounts attempted to affect US voters in the US 2018 mid-term elections by imitating US Democratic party voters and posting messages that sought to discourage voting. Voting in the US is not compulsory. (Bing 2018)

Currently these bots can be detected. In 2017 Pew Research Center performed a study of 1.2 million tweeted links and concluded that around a third of those were shared by suspected bots and automated accounts. They found this by using Botometer, a machine learning system. Botometer was trained on a dataset of 30,000 twitter accounts consisting of both automated and non-automated accounts. Botometer then examined these accounts for patterns and characteristics that may indicate that the account being examined is a bot. This account was then assigned a number between 0 and 1, the higher the number, the surer Botometer was that the account was automated. Botometer’s conclusions were examined by humans who were aware of the actual status of these accounts and this feedback was provided to Botometer to adjust its results. (Gramlich 2018)

Currently NLP are already present in my life. This part of the document was itself was impacted by NLPs which suggested alternate wordings for phrases and fixed my grammar and spelling mistakes. When writing emails dates and times are detected and can be added to calendars, the text of reviews for products are parsed to find commonalities so that I can be served content that interests me and sites that I visit often make use of chatbots.

As NLP AIs grow in popularity and become more efficient, I can see parts of my life becoming more automated. Using an AI assistant to perform tasks such as setting up appointments with little input from myself. I will also need to more thoroughly scrutinise information that is presented to me through social media and the people who spread it.

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