Natural Language Processing and Chatterbots

* What does it do?
* Understand human speech, context, intent
* Written and spoken word
* Malicious use e.g. influence and disinformation
* What is the likely impact?
* Customer service, home, social influence, jobs
* How will this affect you?
* More likely to be interfacing with bots when interacting with companies
* Need to be more aware of disinformation and sourcing

Natural language processors (NLP) are programs that attempt to understand and utilise information given to them by humans through text or speech. NLPs can be used in a variety of ways, these include, but are not limited to, recognition of speech words for the purposes of translation and text generation, analysing texts to produce content such as news articles and extracting purpose and meaning of words through the understanding of context.

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

IBMs Watson is a program that can answer questions consisting of clues. Since winning the IBM Challenge on the American gameshow Jeopardy! in 2010, Watson has gone on to be used in commercial applications. (Examples)

Googles Dialogflow

(state of the art) IBMs Watson, google AI, Amelia. Some chatbots such as Twilio and Dialogflow, can transcribe verbal requests and understand their intent.

A popular form NLPs take is that of a chatbot. These bots are used primarily used in a business context as customer service representatives (Gartner). 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 and recognise their intent without the need for hardcoded responses.

Jobs such as call centre workers and customer service representatives are affected. Chatbots can assist in these workers by parsing information to guess intent and pick out relevant information. However, as chatbots get better at parsing information these jobs may eventually be automated entirely. (BBC article)

According to (Gartner stats) “At the end of 2017 70% of all use cases in AI were related to customer service and call centres." Some companies use NLPs to assist rather than replace workers (IPsoft)

A more malicious way chatbots can be used is to disseminate and promote disinformation. Operations such as (Fireeye) illustrate the ways in which bots are used by state actors.

Basic chatbots have been used to post advertisements and scams to online forums

Currently NLPs have not been able to pass as humans, after enough scrutiny. Chatbots such as those used in disinformation campaigns have been detected using (thing).

Currently NLPs 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 NLPs 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 a degree of ambiguity such as those shown in (Google presentation). I will also need to more thoroughly scrutinise information that is presented to me through social media and the people who spread it.