**IT Technologies**

There are a lot of fascinating developments going on in the IT world, many of which may fall by the wayside, but some of which are likely to change the way the world works. Historic examples of such developments include the Internet, smartphones, cloud computing and public-key cryptography.

Natural Language processing and chatterbots

**Ans**

**What does it do? (600 words)** What is the state of the art of this new technology? What can

be done now? What is likely to be able to do be done soon (say in the next 3 years)? What

technological or other developments make this possible?

A chatterbot use the artificial intelligence (AI) software that can simulate a conversation (or a chat) with a user in natural language through various means like messaging applications, websites, mobile apps or through the telephone. A chatterbot is often described as one of the advanced and promising expressions of interaction between humans and machines. However, it only represents the natural evolution of a Question Answering system leveraging Natural Language Processing (NLP). Designing the responses to questions in natural language is one of the most typical Examples of Natural Language.

A well designed chatterbot can streamline the shopping process in the way that it only needs to write what you want to the chatterbot and the bot will send the information to the sales department. Besides, the chatterbot can analysis your preferences and uses this information when you return. Another area that a chatterbot can help is to personalize communication. A chatterbot could answer the specific questions instead of displaying a lot of information. This will attract more customer’s attention so as to increase the desire to buy something. Besides, chatterbot could improve a response rate as chatterbot can responds to 100% of messages and converts more visitors into potential buyers. Chatterbot can also do a great job to automate repetitive tasks as most customers would ask similar questions. In order not to respond the same answers every time, make a chatterbot. This will reduces employees’ workload and raise their morale.

Natural Language Processing, usually abbreviated as NLP, is a branch of artificial intelligence that deals with the interaction between computers and humans using the natural language. The ultimate objective of NLP is to read, understand, and make sense of the human languages in a manner that is valuable.Most of the NLP techniques rely on machine learning to derive meaning from human languages.

Natural Language processing is a difficult problem in computer science. It’s the nature of the human language that makes NLP difficult. The rules of passing of information using natural languages are difficult for computers to understand.Some of these rules are high-level and abstract; for example, when someone uses a sarcastic remark to pass information or use a slang during discussions. On the other hand, some of these rules are low-levelled; for example, using the character “s” to signify the plurality of items.Completely understanding the human language requires understanding both the words and how the underlying intention are connected to deliver the intended message. While humans can easily master a language, distinguish the ambiguity and imprecise characteristics of the natural languages are what make NLP difficult for machines to implement.

It can be used as personal assistant like Siri and Amazon Alexa to answer non-complicated questions based on data base. Furthermore, it can identify and correct grammar and spelling mistakes. NLP also perform machine translation by translate a natural language to another. Simple sentiment analysis is achievable, and advanced NLP may understand or predict speaker’s intention. A successful chatterbot is thanks to NLP. Chatterbot without NLP, ‘Good morning’and ‘See you’ takes no difference as they are both simply texts. In reverse, NLP helps chatterbot to adjust the response to become more meaningful and appropriate.

NLP and chatterbot are technologies that make language learning and information searching convenient. Convenient, but not perfect. People will expect the technologies to overcome the disadvantage in the future. NLP and chatterbot will able to common in daily-life and workplace and answer more challengeable questions.

In the near future, NLP technologies may bring great advancement in healthcare like automated image captioning to healthcare AI systems and that would be extremely useful in report generation from images or X-rays. In addition, for automotive vehicles, the AI system would being able to independently communicate with the driver’s home AI systems to delegate certain commands it can’t carry out by itself, like to open the garage door or turned on the home air-conditioning before the driver’s arrival.

**What is the likely impact? (300 words)** What is the potential impact of this development? What is likely to change? Which people will be most affected and how? Will this create,

replace or make redundant any current jobs or technologies?

The widespread NLP in general may change the style of people learning language. Even now, there are children learn words through phone application and computer software. The convenience of NLP will affect our culture as how the smart phone did. The kind of person which gained large benefit from NLP and chatterbot are those who use them to make business, the customer service and the big data management. Customer service may release stress from request overwhelming. Install a chatterbot can minimize the chances of wasting effort in handling repeated general questions. While big data management can locate certain information in huge group of items easier than before.On the other hand, it could make some jobs such as lawyers and financial service progress their work differently from traditional method. Lawyers can use NLP technology to address the support law regulation and evidence with court case quicker. So that they may complete their job in a shorter time but which also means the billable hour income become lower. For financial service, business trader and financial information manager usually take lots of time and effort to update the news.But if they used NLP, machine learning and static analysis, then can search and dissolve the details automatically in less time. Using NLP may change some workplaces’ structure in both convenient and lazy ways.People have concern about information technology may replace human. Still, robot and AI can understand clients’ needs and wants but not master them. Chatterbot often cannot handle complex questions, such as some emotional reactions, sophisticated calculations and conflict of authority. With the advance of technology, it gradually changed the nature of the job, and the skills required to do it, rather than replacing it altogether. Moreover, some industries like food service, janitorial work, gardening, home health, childcare, and security are generally physical jobs, and require face-to-face interaction, there’s little incentive to replace these tasks by robots at the moment, as there’s a large supply of humans who are willing to do them for low wages.

**How will this affect you? (300 words)** In your daily life, how will this affect you? What will be different for you? How might this affect members of your family or your friends?

NLP and chatterbot I have countered personally are email and internet search result filters, Google Translate and online chatterbot. When my family, friends, and myself are struggling to find a certain email sent by any of us, we can locate it by using filter and folder. In my major course (accounting) industry, NLP technology cancategorize and analyse the client’s issue and relevant taxation case law.Human accountant can provide a more appropriate advice by learning the customer through chatterbot.When I have a trip to other country, I always use Google Translate to communicate with people over there. I can ask what I need to know in my own language and the people over there can understand and answer my queries in their own language. It is quite handy and useful in most time but sometimes the translation cannot translate my words correctly, it will make me frustrating and wasting more time in trying another wordings input to hope the translated outcome is correct than using other methods to solve the problems. When using the applications or products that adopts the Natural Language processing, we will rely more on the technology and become lazy. For example we will think that it is wasting of time to learn foreign language since some products have already provide the convenience and facility that you can make use. Although the chatterbot can answer simple enquiries, sometimes it will irritate me when I am answered in totally wrong direction. For a company with good implementation and adoption of the chatterbot technology will make me feel that the companyis serving her customers with great considerations, on the contrary, it will give me very impression of the company. With the more advancement of the new technology, there is more risk of artificial intelligence may take over control human over various aspects of life