Artificial Intelligence and Virtual Assistants

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I. Introduction

IT is no secret that the advances in computer technology are rapidly changing the way that people interact with the world around them. The current concern is whether these advancements will lead to a utopian or dystopian future. Today, virtual assistants are incredibly common: Apple's Siri, Amazon's Alexa, Microsoft's Cortana, and the Google Assistant. Are these virtual assistants examples of artificial intelligence? Will they help or hurt society as they become more sophisticated?

II. Artificial Intelligence Defined

Artificial intelligence (AI) is defined as a system with the ability to accurately interpret data from an external source, learn from this data, and utilize what was learned to perform specific tasks. Then as the AI gains additional skills, it becomes more human-like. An analytical AI has cognitive abilities such as pattern recognition and systematic information processing. A human-inspired AI adds emotional abilities such as adaptability and self-awareness. Finally, a humanized AI adds social abilities such as teamwork and leadership. The only thing separating a humanized AI from a human is the human's potential for artistic creativity [2]. Virtual assistants are constantly learning from the queries of the entire user base to improve their voice recognition and instruction execution. They also have adaptability in the sense that they will predict and suggest certain actions based on the user's habits. Thus they can be classified as a human-inspired AI system.

III. Humanization of Virtual Assistants

During the 2018 Google I/O developer's conference, Google CEO, Sundar Pichai, announced a feature called Google Duplex that allows the Google Assistant to make phone calls on behalf of the user. Pichai shows the audience two scenarios that this could be used for. The first is something that many people have needed to do: schedule a haircut appointment. The AI uses a particularly convincing computer generated voice to call a hair salon and schedule the appointment within a time frame on a certain day specified by the user. The Google Assistant's ability to create the illusion that the call is made by a human with the use of phrases such as "umm" and "mhm" is the most astounding aspect of the conversation. The next scenario is also a very typical task of a personal assistant: making a reservation at a restaurant. This conversation showcases the Google Assistant's ability to change its goal based on the situation. This restaurant doesn't accept reservations for the user's specified party size, but the Google Assistant understands to ask for an estimated wait at the time of the reservation instead [1]. The Google Duplex system is a prime example of how AI software is becoming more indistinguishable from human interaction. In a study conducted in 2015, 70% of the participants who use Apple's Siri regard 'her' as a voiced entity within the machine and not the machine itself. One participant described 'her' as a 'crazy lady that lives in your phone' [3]. This further establishes that virtual assistant AI software is becoming more humanized.

IV. Passing the Turing Test

Now consider the work of Alan Turing. In his paper 1950 paper Computing Machinery and Intelligence, Turing proposes a test to determine whether or not machines can think, in the form of a game that he calls The Imitation Game. The game involves two contestants, a human and a machine, and a human asking them questions. The goal of the questioner is to correctly identify each contestant as human or machine, while the goal of the contestants is to trick the questioner into identifying them incorrectly. If a machine is able to fool the interrogator into thinking it is human, it wins the game and is determined to be a thinking machine [4]. The Google Assistant seems to do exactly this. It is able to "understand the nuance of language" [1] and adapt its directive in real time so that the person on the other side of the phone call most likely is unaware that they

are speaking to a computer program. In the case with Siri, despite people knowing that it is computer software they still anthropomorphize it and regard it as separate from the machine. It is not an unreasonable conclusion that these AIs could, if not now then relatively soon, successfully imitate a human and pass Turing's test.

V. Effect on Society

How can this technology benefit society and how can it hurt it? The main benefit of this system is the obvious reduction of time spent on phone calls. A majority of people feel that the most inconvenient aspect about calling a business is that the caller is often placed on hold for an indeterminate amount of time. A less obvious benefit is how this technology could help those with disabilities that prevent the use of a telephone such as someone that can only communicate non-verbally. With the Google Assistant, these individuals could potentially perform many tasks on their own that they normally would have to hire someone to help them with. This can provide a sense of independence which those with disabilities often lack in addition to the financial savings. However, a potential drawback of delegating conversations is bolstering the social disconnectedness that is often cited as the problem with smartphone dependency. Another issue is that it is dishonest for an AI to deceive someone by impersonating a human.

VI. Conclusion

By the First Formulation of Kantianism, if everyone uses a virtual assistant to complete menial phone calls, there is no outright hindrance on society. Businesses pay people to answer calls, so a computer making them instead doesn't negatively impact them. By Social Contract theory, it is a negative right for someone with a disability to be able to operate independently. A business must accommodate individuals confined to wheelchairs, so those that require AI assistance should be as well. Next, it can be argued that smartphones actually strengthen social connections as people are often socializing with individuals all over the world through instantaneous messaging applications or social media. Finally, it would require a simple implementation for the AI to either immediately identify themselves as such or if prompted by the call recipient. The advantages of the AI assistant are rather strong while the disadvantages are rather weak. Therefore, it can be concluded that this software is beneficial to society through a modified Utilitarian calculus. Luckily for the human race, this means that they won't be used as batteries for the robot overloads anytime soon.

References

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