

Comparative Anatomization of Consciousness in Human Encephalon and Computer: A Criticism of the Chinese Room Argument

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Abstract - In this paper, we aim to critique the “Chinese room experiment” which was designed to prove that the Turing test is flawed and that a computer is not conscious although it passes the Turing test. Consciousness is defined as the capability of being cognizant of one’s surroundings and being able to react to them felicitously. By definition, computers are conscious, but many cerebrated otherwise. As a component of our research, we have studied the philosophical, neurobiological related attributes and distinctions between the human mind and a “simulation” of the human mind by a computer program. Predicated on everything we have unearthed utilizing several in-house examples and reviewing the work of fellow researchers, we believe we have sufficient findings to conclude that there are more homogeneous attributes between the human mind and strong Artificial Intelligence that meets the eye. Suggesting that they are more isomorphic than we believe.

Key Words: Strong Artificial Intelligence, Chinese Room, Human Mind, Turing Test, Philosophy, Consciousness

1. INTRODUCTION

The Chinese Room Argument, published by the American philosopher John Searle raises critical questions to the field of Artificial Intelligence. With this thought experiment, Searle expresses that machines are masquerading the competency to understand through simulation, and in authenticity, do not possess the faculty to understand homogeneous human beings. This research intends to provide counter-arguments and to show that machines are more homogeneous to humans than the Chinese Room Argument suggests. Humans, when they are born, do not possess skills like verbalizing or ambulating. These infants visually examine their circumventions and the demeanor of the people around them and then endeavor to imitate them. A baby born in India and raised in an English speaking household would carry on to speak English in the future. The supposed cognizance of human commences with the art of imitation and visual examination. Compare this to a machine that has sensors to perceive its surroundings and the facility to keep learning from experiences. With advances in the field of Artificial Intelligence through Machine Learning and Deep Learning, engendering such a machine is quite conceivable. If a machine simulates erudition, what is to verbally express that a human doesn't?

2. LITERATURE REVIEW

The argument/thought-experiment now kenneed as the Chinese Room Argument was first published in a 1980 article by American philosopher John Searle. In his article, Searle sets the narrative of a closed room inside which we place a person who does not speak Chinese along with a rulebook that links certain input phrases to certain output phrases. Outside the room, we have a native Chinese verbalizer who inscribes a question on a piece of paper, this piece of paper is slid under the door into the closed room. The person inside the room looks up the Chinese question in the rulebook by matching the symbol visually and indites the corresponding output phrase on a piece of paper and slips it from under the door for the other person outside to read. Once the experiment has culminated if we ask the person outside the room if he cerebrated he/she was conversing with someone who kenneed Chinese he might say affirmative, but the truth is that the person inside did not understand Chinese whatsoever. He then says that in this narrative the rulebook is like a computer program and the person inside the room is a computer/CPU and albeit the computer can simulate the cognizance of the Chinese language and fool the person outside the room, hence passing the Turing test. The computer can never have a true understanding of the language as humans can because when a computer program is indited it focused thoroughly on the syntactical perspective and is not bothered with the semantics.

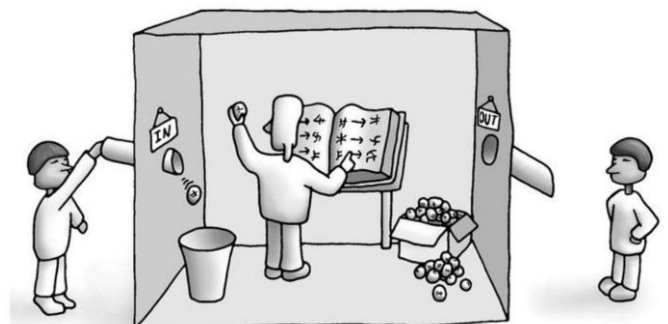


Fig.1 : The Chinese Room Experiment(Source:Wikicomms)

Many people dissented with this ideology and raised questions from sundry viewpoints. For example, there were claims that humans additionally are perpetually learning organisms that have no consciousness when initially in the womb and are engendered with the avail of the genetic code obtained from the parents, however,

babies develop a sense of consciousness over time through experiences. There were other claims stating that the working of the human mind is obscure even as of today and we do not understand what the authentic inchoation of consciousness is because there is no overt distinction between a conscious encephalon vs an insensate one. Another argument and perhaps the one that predated the most attention was given by William Lycan, another American philosopher, he claimed that the person alone did not understand Chinese but the person along with the rulebook as a system understood Chinese and further verbally expressed that even in our bodies no individual part has consciousness but we have consciousness holistically.

3. THE INFANT ARGUMENT

Babies, when they are born, do not possess gregarious skills. They can't ambulate, dance, or strike conversations with others. They optically canvass their surroundings and the people around them and learn. Consider a machine that has sensors that perceive its surroundings. This machine additionally stores all the data it discerns and applies puissant deep learning algorithms. So, this machine can store data from its experiences and process it to make decisions in the future, should a kindred situation arise. So, this machine learning a language is not very different from a baby learning to speak. Both learn through perception and experience. The main conclusion drawn from the Chinese Room Argument is that the human mind is not a computer-like system, and computers can only simulate the biological capacity of the said human encephalon. The machine simulates the construal of Chinese and doesn't precisely understand like a human, according to the argument. We humans ourselves learn through simulation. Babies watch others and learn to ambulate and verbalize. If a baby is born in India and raised in the US in an English speaking family, the baby will grow up to speak in English and not its native language. Babies observe the way people talk, the sounds they make, and store it in their encephalon. They keep learning through a visual examination. Machines withal do identically tantamount. Albeit the man does not understand Chinese, the room as a whole communicates accurately. The Chinese Room Argument claims that the man utilizing rule books to give a replication in Chinese is homogeneous to a machine utilizing its rule books to give a replication. This is a flawed way to look into the experiment as the machine is not just a component of the room but the room holistically, including the rule books. Every language has its own set of rules, alphabets, words, etc. When a person learns a language, the rule book is stored in his encephalon. The man in the room physically looking into the rulebook is kindred to a mundane person mentally looking into their mind to answer the posed question. If the machine simulates understanding Chinese, so does every other person who learned Chinese.

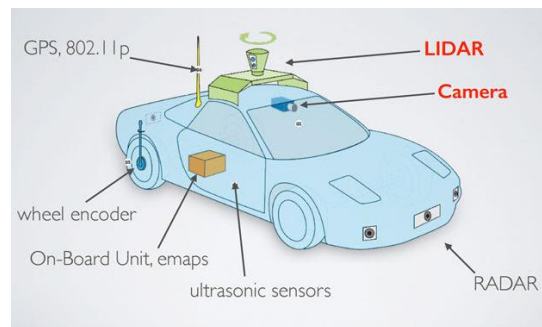


Fig. 2 An Autonomous car that perceives its surroundings off of which it takes its decisions (Source: Anas Alhashimi)

Infants may have some abilities passed on through genetic information, like reflexive skills. If a baby unknowingly physically contacts a burning plate, he would feel the pain and immediately abstract his hand. Such skills are not learned but are in-built. These skills can be pre-programmed in a machine to a certain extent. The sensors could be set in such a way that if they detect heat beyond a certain threshold value it is considered to be inimical. This is not to say that everything a human can do can be programmed into a machine, but rather the concept behind both machines and humans is eerily similar. It is not fair to call computers as simulators or pretenders while not accepting the same for a human. The major difference is that humans are built in a superior way compared to not just machines, but all other life forms.

4. THE CONSCIOUSNESS ARGUMENT

Although many question the consciousness of a computer, by definition they are conscious. Consciousness is, fundamentally, to visually examine the surroundings and to be able to react felicitously. Computers are capable of doing both these tasks rather well. Let me explicate with the avail of a remote vacuum cleaner that takes optical discernments from its surroundings with the avail of different kinds of sensors (optical, proximity), and reacts accordingly, predicated on the data perceived by kinetically bypassing and turning on the vacuum wherever compulsory. Here, the vacuum cleaner both observes its surroundings and acts according to the perceived data. Whenever it senses dirt, it would turn on the vacuum and clean it. When it doesn't it would kinetically circumvent until the entire room is clean. Hence this vacuum cleaner, by definition, has a consciousness.

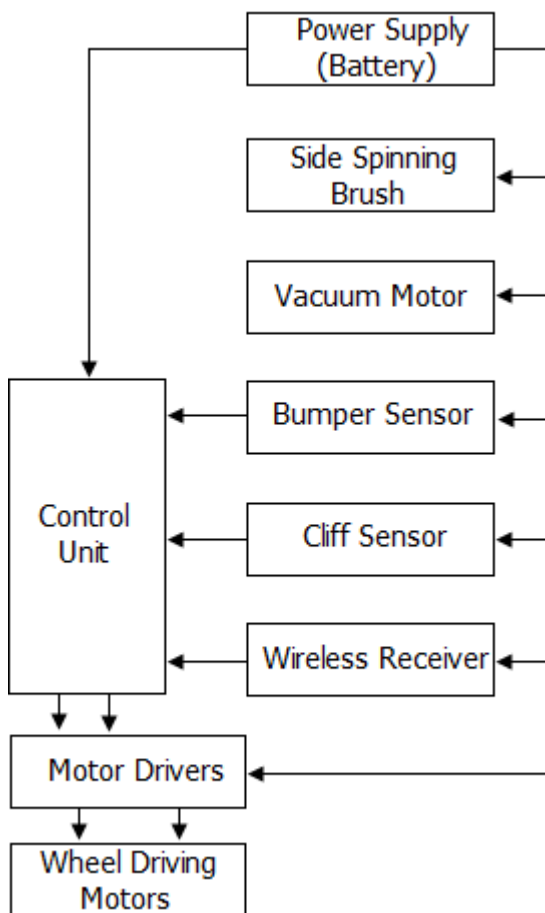


Fig.3 : ControlFlow of a remote vacuum cleaner
(Source: Khondker Jahid Reza)

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John Searle withal claims that he doesn't cerebrate bacteria or other more minuscule organisms like an amoeba as conscious, as they do not possess the machinery to duplicate the causal powers of the encephalon. However, he withal verbally expresses that he considers his canine to be conscious just like humans. This raises the question of precisely where we draw the line from which organisms have the expedient/machinery to be conscious themselves.

5. CONCLUSIONS

With increasing advances in deep learning and machine learning algorithms, the demonstration that machines have their consciousness is more and more vivid. With sensors, they can sense, and with pre-built algorithms, they can act. With machine-learning/deep-learning algorithms, computers learn perpetually and become better models through experience. It is thus inequitable to call machines as simulators or pretenders. They are not as robust or as puissantly built as a human mind, but they have consciousness just like human beings. They have their intelligence in the form of Artificial Intelligence.