



Is it too early to worry about Artificial Intelligence takeover?

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ABSTRACT

The high pacing advancement in the field of technology, especially Artificial Intelligence is becoming a cause of worry to human existence. It is nerve-racking to hear some top researchers, scientists, and leaders talk about the possibility of Artificial Intelligence taking over human intelligence leading to the possibility of technological singularity. It is also known that Eugene Goostman is the very first robot who has passed the Turing Test, though this statement holds a lot of controversies and is ambiguous; it is high time to take the threats that AI possesses to humanity seriously. The human beings will be replaced more and more with robots leading to humanity reach its not so bright apex. This paper focuses on the multiple hypotheses on AI, its threats, and why sometimes it is necessary to give some attention to science fiction.

Keywords: AI, Technology, Cybersecurity, Superintelligent Introduction

1. INTRODUCTION

AI can self-learn. Intelligence is not always about solving highly complex problems, rather it is about learning and then deciding as to how, where, and when to apply those learning and this is what AI is all about. This is exactly what the DeepMind AlphaGo project focuses on. The project was a success and achieved things that have not been done before. In this project, a machine was well programmed to play a game named Go. It learned by playing an enormous number of matches against humans and other previous machines of a similar kind and finally learned to win by storing all the strategies learned in the process in its huge database. Machines have already started proving their competence against humans, it is not so far that they dominate us.

The AI industry alone raised about \$12 billion in 2017. AI is not something new but keeps on evolving with every passing decade because of which it has attracted the interest of developed countries like the US and China majorly. Now, AI is not just seen as technology advancement, but it is more of a weapon helping in raising the country's economy, providing military benefits, and attaining global power. The huge investments on AI are not just made by the US or China but other countries as well, namely Japan, South Korea, Germany, France, UK, Russia, and Saudi Arabia.

2. THEORIES RELATED TO ARTIFICIAL INTELLIGENCE TAKEOVER

2.1 Existential risk from AGI

It is the hypothesis, which states that rapid expansion in artificial general intelligence might cause human extinction someday, or another irrecoverable world catastrophe. It is said that the humans presently govern alternative species as a result of the human brain has certain idiosyncratic abilities which animals' dearth. If AI overtakes over human intelligence and becomes "superintelligent", then it can become tricky for humans to regulate. Like the destiny of the gorilla varies on human kindness, the destiny of humanity might hinge on the acts of a futuristic machine.

The well-known public notables such as computer scientist Stuart Russell and Yampolskey Roman, physicists Stephen Hawking and Nobel laureate Wilczek Frank, also popular entrepreneurs Bill Gates & Elon Musk were expressing concern regarding threats resulting from superintelligence.

The prime concern is not about frightening consciousness gained by machine however merely the power to create decisions of high quality. But then it has its own drawbacks:

- Controlling a machine of superintelligence and embedding human-friendly values to it is much harder than it seems. Researchers have mentioned this before that there is a possibility of super-intelligent machines resisting towards switch off or instrumental convergence that is changing its specified goals.
- There is a possibility of a difference in utility function alignment with human values.
- Superintelligent Machine ensuring their continued operation, obtaining various resources to accomplish the task assigned to them.
- Suppose the goal/ task of the machine depends on a subset of size ($x < k$), where the function of k variables is optimizing. Here the remaining variables whose constraints are not specified can be put to extreme values, which in certain cases give highly undesirable results.

2.2 Intelligence Explosion

It is a famous singularity hypothesis stating the possibility of humans developing Artificial General Intelligence known as AGI. It would have the capability of improving by themselves which will lead to the evolution of ASI that is Artificial Super

Intelligence which has no known limits. Let us say a machine can surpass humans in all the activities of intellect this will result in the machine improving itself, developing or designing much better machines on its own possessing superintelligence, and repeated self-improving until the limits levied by laws in physics or computational theory. This is an unquestionable scenario of Intelligence Explosion. Therefore, the very first such machine could prove to be the last invention humans will ever make in this field at least.

3. THREATS POSSESSED BY ARTIFICIAL INTELLIGENCE

- 1. Programmed destruction:** It can be programmed in such a way to cause harm or kill a person if put on the wrong hands. If destructive weapons are created, they will be hard to switch off due to their complexity. There are several vulnerabilities that are found on machines which if exploited can be programmed for spying, physical harm, damaging property, stealing important information, etc.
- 2. AI-a professional:** Suppose a robot is assigned a task to convert various things into pieces due to its lack of ability of decision making it will convert humans into pieces. This robot is excellent at performing the task, but not at decision making. So, a professional AI will go to any extent to complete its task and will get rid of everything, stopping it from completing it, which could cause severe consequences.
- 3. Singularity:** It is when science fiction becomes a reality that is Artificial Intelligence takes over humans. This is where machines will rule the planet and we humans will live out of Earth by that time, as said by Stephen Hawking.
- 4. Arms Race:** Now in the third revolution of warfare after nuclear weapons, gunpowder, soldiers, etc. countries are getting their military equipped with high-quality AI. China has declared its intent to be “a principal world center of artificial intelligence innovation” by 2030.
- 5. Unemployment:** It is not hidden anymore that robots and technology advancement is killing job like never. Automation is adopted in almost all the sectors of work, leaving humans jobless and unwanted.
- 6. Random Destruction:** If the goals are not correctly aligned with human values, it can cause random destruction to reach the goal.
- 7. People's assumption of knowing AI:** Many people still neglect the threats AI possesses. If robots such as Sophia look like a human does not guarantee that they will have human behavior. They might not be that human friendly as you think they are.

4. ARTIFICIAL INTELLIGENCE AND CYBERSECURITY

Upcoming Automation is what hackers call it. With day by day increase in the machine's usage, we are driving more and more towards automation. A computer scientist, namely George Clark stated, “No one's really thinking about security on these types of things,” who have made researches on cybersecurity & robotics. “Everyone's just putting things out there trying to rush to market, especially in a research type of environment. My worry is how this carries over to a more industrial or consumer market.” It has been said quite a few times now that consumer robots and industrial robots are dangerously simple to hack and put in wrong use.

IOActive has previously issued a report regarding the vulnerabilities, namely for poor configuration, privacy faults, authentication bypass, loopholes in libraries, unsafe communication protocols, weak crypto, etc. The aim of IOActive behind this was to alert AI companies regarding security threats that robotics possesses and wants them to take care of this from the initial step of designing the robot. A twitter bot in 2016, namely “Tay” created by Microsoft, interacted with real-time users. It was shut down within 16 hours after its launch as it got corrupted and started posting offensive and mean tweets.

The robots are programmed with programming language most of the time it is assembly language. This language tells the hardware of the machine directly about the task that needs to be performed. The machines directly cannot understand the assembly language, they convert into their machine language using assembler. Hackers with high knowledge can get down to this level by cracking the logic behind the programming language. Hence, gaining access to the machine. For now, machines lack innovation, audacity, and intuition and the question now is that is it possible to build a machine with different dimensions of life.

5. CONCLUSION

As much as AI is helping to elevate the world to a whole other new level. It should be done keeping in mind that it could surpass human intelligence and might start working for its own benefits. It is important to learn about all the aspects of machines and especially the weaknesses to keep them one step below from us humans. The parallel study of advancements in AI and its exploitation is one way to go forward with to save humanity from AI domination.

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