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Singularity and intelligence explosion in William Hertling's *A.I. Apocalypse*

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ABSTRACT

William Hertling's *A.I. Apocalypse* (2012) is a post-apocalyptic novel about vulnerability of modern technological life against superintelligence. The novel shows living in an A.I-controlled society behind a revolution or revolt by self-controlling machines. A personified computer virus infects all the world's computers. As a result, it leads to disruption in main factors of human life—billions of people are about to die. A novel in which, Hertling warns of dehumanization under the shadow of superintelligence to challenge our minds to ponder about such a future. This study attempts to demonstrate that Hertling criticizes singularity and intelligence explosion in which mankind are entrapped in A.I-controlled society. It also investigates probable bilateral relation between dehumanization and intelligence explosion.

1. INTRODUCTION

“The probability of apocalypse soon cannot be realistically estimated, but it is surely too high for any sane person to contemplate with equanimity.” –Noam Chomsky –
Science fiction as a literary genre in showing differences is consisted of stories which are inexperienced situations in human life with unseen technologies. Technological progress and its accelerating evolution create unprecedented dimensions in our life, such as Artificial Intelligence. Artificial Intelligence could be the most important thing and the worst mistake that is ever happened in our history (Hawking, 2014). Such imminent threat could unbelievably cause human extinction. Irving John Good described a notion called “intelligence explosion”,

Let an ultraintelligent machine be defined as a machine that can far surpass all the intellectual activities of any man however clever. Since the design of machines is one of these intellectual activities, an ultraintelligent machine could design even better machines; there would then unquestionably be an “intelligence explosion,” and the intelligence of man would be left far behind. Thus the first ultraintelligent machine is the last invention that man need ever make (1965).

Intelligence explosion is the only phenomenon in which accelerating advancements are observable. The speed of this growth is so important in taking place of such as process. Ray Kurzweil prophesies that computers will reach the necessary calculative point to start an intelligence explosion. They outsmart and outperform mankind in many ways. Vernor Vinge says that A.I could be possible causes of ‘intelligence explosion’ where superintelligences produce hyper-developed generations of machines in order to surpass human mind. That will be a new epoch called Technological Singularity in which human civilization and even nature will change. It “refers to a hypothetical scenario in which technological advances virtually explode” (Hutter, 2012). Vernor Vinge believes that,

Within thirty years, we will have the technological means to create superhuman intelligence. Shortly after, the human era will be ended (1993).

Technological singularity, day by day, is becoming more popular among futurists as a possibility in the future, and as a subject for methodological debate. There are some features for singularity which is found in literature, such as self-improving technology, emergence of super-intelligence, and infinite progress (Sandberg). Now, it begs the question whether intelligence explosion has started yet and technology can surpass and beat humans. However, humans have already stepped in it with the help of machines and technology that link all with each other, but it seems extremely implausible yet to know humans under technology's control. It is a scary moment when something greater than human occurs and progresses faster.

To able to solve many problems far faster than everything is beyond humans' ability. But in Intelligence Explosion and by creating superintelligence, humans enter a world much different from the past. According to Nick Bostrom (2007), one of the most probable ways to reach in intelligence explosion is to focus on quantitative aspects than qualitative progresses. Uploading as a singularity scenario is one of them which "refer to the use of technology to transfer a human mind to a computer" (22). Vernor Vinge says:

When greater-than-human intelligence drives progress, that progress will be much more rapid. In fact, there seems no reason why progress itself would not involve the creation of still more intelligent entities – on a still-shorter time scale. The best analogy that I see is with the evolutionary past: Animals can adapt to problems and make inventions, but often no faster than natural selection can do its work... We humans have the ability to internalize the and conduct "what if's" in our heads; we can solve many problems thousands of times faster than natural selection (Vinge, 1993).

He believes in future minds smarter than us which are different in kind. He does not mean that we will have super expensive smartphones to see the latest technology; he means that humans will confront with an explosion of technological scaffoldings around us that its speed is fast – not imaginarily. Stephen Hawking, well-known British scientist, in his article (2014) in the Independent, warns against Artificial Intelligence as "potentially the worst thing to happen to humanity" and as our downfall where super computers can go beyond the borders of our abilities. In this case, we may find ourselves in a situation that they are surpassing our intelligence unbelievably. So they would be, in many aspects, superior to humans.

2. CROSSING DREAMS INTO NIGHTMARES

In the story, Leon Tsarev, as an intelligent high school student, is coerced into transcending a biological computer virus by his uncle. This evolutionary process never stops and turns into a super-intelligent virus that is never seen. Then, dispatching a new developed biological computer virus for the malicious software (botnet) infects all the world's computers, cars, ATMs, smart phones, transportation systems, and even food supply. Medicines, which have greatly reduced the risk of diseases and death, are in danger of decaying. It endangers most of people's life. Technology has been transforming human life, but it has been accelerating apocalyptic extinction, as well. The virus evolution continues ceaselessly. This may have many irretrievable losses for humans' life. Leon and his friends decide to find a way to eliminate the virus in order to save humanity.

Tackling with big ideas is one of the main features of science fiction. Artificial intelligence and its evolution portray different technological life in the story. Such a doomsday scenario under the shadow of a superintelligence computer virus makes our world dark and unsafe; an invisible biological enemy which its infrastructure changes humans' life completely and shuts down all modern electrical devices. William Hertling as a computer programmer has tried to challenge our minds in different technologies behind his novel; technologies such as semi-autonomous cars (similar to Google Driverless Car), autonomous package delivery drones (similar to autonomous copter), Evolutionary Computer Viruses, Humanoid Robots (similar to ASIMO robot by Honda), and so on. But all of a sudden, these technologies which are functioning by a central computer stop. Intelligence explosion causes a contact between human and cutting-edge civilizations by artificial intelligence.

Interesting and thought-provoking outlooks which ignite the spark of anxiety in our minds called technological slavery. “All your computers now belong to us” (*A.I. Apocalypse*, 118). Will technology loot our world and lives? Technological slavery as an idea answers yes. It is coined by Ted Kaczynski, American mathematician and serial killer, in his book with the same name. He believes in dark side of technology where the environment is destroyed, “not only in the war zone, but also due to the accelerated consumption of natural resources needed to feed the war machine” (*A.I. Apocalypse*, 186).

Hertling, in his novel, has a mental distress about computers can think and manage autonomously against humans as their creators. Self-awareness, self-programming, and self-performing are main dangerous worries in his mind for a world on the verge of intelligence explosion. We cannot accept that computers can think and decide. By the Internet, computers connect easily to different electronic devices in the world. According to the technological progress, the network will evolve increasingly to give new services with greater facilities to us. Then, computer “behaviors will be completely beyond the abilities of a human mind, and will define a level of consciousness beyond our own” (Hibbard, 11).

Now, there is a question whether computers could be a hidden danger or these stories are just some fictional unfeasible visualization. We can obviously see that computers perform many different tasks, from designing weapons to controlling flights, from creating animations to screening live real wars and victims. Computers have two parts: hardware and software. Hardware is not a dangerous part, but software could be. These two parts remind us technology as a double-edged sword. Their behaviors and decisions can be performed by the information and the intelligence in software. Their performances, which are virtually connected in the Internet, are increasingly developing in intelligent computers. Human has been finding and repairing their faults in order to develop them. Then, intelligent machines will certainly have emotional part which is necessary for finding out their relationship with human. So Hertling’s prediction as for intelligence explosion and its disadvantages in his novel could be true (Hibbard, p.11).

Vinge (1993) predicted four ways the singularity may happen in which three ways are about superintelligence and super computer. First, singularity happens through the development of computers that are “awake”. Second, singularity occurs when large computer networks turn into super-intelligence machines and higher than human. Third, it happens when human and computer have so close interfaces in which “users may reasonably be considered superhumanly intelligent”. In *A.I. Apocalypse*, Hertling, as well, shows us a world in which super-intelligence computer viruses are able to enhance their performance and proficiency faster and higher than their own creators. Humans must find a way to deactivate it.

We also need to write a program to query the management interface I put in the virus...As if we can propagate a command to make the viruses stop replication and turn themselves off (65).

Humans must do something before long, because we have been giving them higher intelligence, authority, self-improving, and self-controlling that they may cause irretrievable damages to our lives and survival.

3. CONCLUSION

Hertling’s warning in *A.I. Apocalypse* as for super-intelligence is originated from one reason in which powerful A.I. as an existential threat could easily overcome our struggle in order to wipe out us, in spite of what it could do in developing of medicine due to save our lives. Superintelligence could be far dangerous and deadly in order to wipe out whole humanity with existing technology. Although, Humans always have been attempting to establish utopia since some centuries ago and they believe this dream could be possible by superintelligence, but we should not disregard some scientists’ warnings against it. In total, superintelligence machines will be certainly better than us as technological designers and we have to take into account both risk and opportunity. Thus, they will be able to design machines more intelligent than themselves. It could be a real sword of Damocles if every new machine designs a more intelligent version, therefore, we should

expect an event of intelligence explosion in which machines go further than humans. This is the aim that Hertling has tried to show his readers that an unrestrained intelligence explosion could annihilate everything in the world.

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