

## PROSPECTS OF THE RISE OF ARTIFICIAL INTELLIGENCE IN DAN BROWN'S *ORIGIN* AND ALEX PROYAS'S *I,ROBOT*

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### Abstract

This paper is a brief exploration of the possible scenarios of the rise of Artificial Intelligence software, as shown in Dan Brown's novel *Origin* and the movie *I, Robot* directed by Alex Proyas. If it were told three hundred years ago, the existence of current technological advancements of the modern world such as the internet, smartphones and artificial intelligence software such as Siri and Cortana would have been dismissed as blunders. That's how progressed mankind has become in the present context. But in the process of creating machines, each better than the next and far exceeding human capabilities, it is doubtful whether the reins are held firmly enough by the creators. Artificial Intelligence is in itself a highly volatile technological advancement. Auto process washing machines to the recently Saudi citizenship-awarded robot Sophia all come under AIs. Under that thrill of creating wondrous AIs that surpass the limitations of the human brain, are we humans creating our 'someday-masters'? Though there are several books and movies that deal with the themes of AI takeovers, critics and audience dismiss them as products of fiction; the same way our predecessors would have dismissed the idea of a hand held device that could become equivalent to a human's second psyche. This paper deals with two likely events that could happen in a posthuman world.

**Keywords:** Artificial Intelligence, posthumanism, AI takeover, decentering, *Origin*, Dan Brown, *I, Robot*, extinction, Alex Proyas, anthropocene

### Prospects of the Rise of Artificial Intelligence in Dan Brown's *Origin* and Alex Proyas's *I,Robot*

The quest to make the earth a better place for the future has been one that has prompted the world population into an endless marathon. From the accidental invention of the wheel sometime around 3500 BC, mankind has rode the wave of progress at a pace manifold than that of any earthly species. Being one of the few living beings having a knowledge or awareness about his own existence and that of the environment around him, man has always tried to fit into his ecological niche by creating alterations to his own immediate surroundings. But in this process of improvising and adapting, man has been overwhelmed so much by his innovative potential that he has seemingly forgotten that he himself is a part of nature's own process of evolution. The process of evolution is one that has always created and destroyed with the same impact and man being a puppet operated by the hands of this higher natural force, has undergone his own evolutionary advancement aided by his own innovations and intellect.

Through the constant strife towards the betterment of his own kind and the environment around him, mankind slowly attained the status of becoming the dominant species on planet Earth. This struggle for the advancement of one species in particular has in turn altered or rather disrupted the geological as well as the biological cycles on planet earth. This geological age where *Homo sapiens* has become the dominant species, thus attained the name 'Anthropocene'. The word "Anthropocene" takes its origin from anthropo, for "man," and cene, for "new". The Merriam Webster dictionary defines the term "Anthropocene" as "the period of time during which human activities have had an environmental impact on the Earth regarded as constituting a distinct geological age".

In terms of the theory of Structuralism, Anthropocene can be explained as the geological age where human beings have become the centre of the structure that is the world, and all the environmental and biological processes are influenced by the activities of man. But the centre is not always constant as it is susceptible to variation. Therefore, the dominance of mankind over Earth and its environment is one that is subject to change. As time passes by, there will come the time for one significantly more advanced species to take over the position of being the centre, as has happened during the previous epochs such as the Cambrian, the Jurassic and the Cretaceous.

This is where the concept of Posthuman theory gains prominence. The term Posthumanism literally could be translated into 'after humanism'. 'Humanism' is a philosophical and ethical stance that emphasizes the value and agency of human beings, individually and collectively, and generally prefers critical thinking and evidence (rationalism and empiricism) over acceptance of dogma or superstition. The term Posthumanism is one

that encompasses a wide range of meanings that are in themselves individual theories linked to varying scenarios.

According to philosopher Francesca Ferrando, there may be at least seven definitions to Posthumanism. Anti-humanism, Transhumanism, AI Takeover, etc are all theories that resulted from the different interpretations of Posthumanism. Anti-humanism proposes that philosophical anthropology and its concepts of "human nature", "man" or "humanity" should be rejected as historically relative, ideological or metaphysical. Transhumanism is a philosophical movement that advocates for the transformation of the human condition by developing and making widely available sophisticated technologies to greatly enhance human intellect and physiology. An AI takeover is a hypothetical scenario in which artificial intelligence (AI) becomes the dominant form of intelligence on Earth, with computers or robots effectively taking the control of the planet away from the human species. All these theories put forward a similar scenario, one where humanity or "humanness" is evicted from the centre and similar, yet more advanced substitutes take their place.

In computer science, artificial intelligence (AI), sometimes called machine intelligence, is intelligence demonstrated by machines, in contrast to the natural intelligence displayed by humans. Colloquially, the term "artificial intelligence" is often used to describe machines (or computers) that mimic "cognitive" functions that humans associate with the human mind, such as "learning" and "problem solving". As machines become increasingly capable, tasks considered to require "intelligence" are often removed from the definition of AI, a phenomenon known as the AI effect. Modern machine capabilities generally classified as AI include successfully understanding human speech, competing at the highest level in strategic game systems (such as chess and Go), autonomously operating cars, intelligent routing in content delivery networks, and military simulations. Today's Artificial Intelligence (robotics) has the capabilities to imitate human intelligence, performing various tasks that require thinking and learning, solve problems and make various decisions. Artificial Intelligence software or programs that are inserted into robots, computers, or other related systems which give them necessary thinking ability.

Advances in modern computing technologies have created an explosion of major breakthroughs in the field of artificial intelligence (AI). The concept of super intelligent artificial beings can be originally traced back to antiquity, but has recently become a leading topic of discussion in public dialogue and mainstream media as AI technologies become increasingly integrated into our everyday lives. Popular shows, such as Westworld and Black Mirror, explore the ideas of consciousness in machines juxtaposed with human consciousness, and are often set in a grim and apocalyptic future. The existential threat of artificial super intelligence has become a popular topic of debate, with public figures such as Bill Gates, Stephen Hawking, and Elon Musk warning against the dangers of creating super intelligent AI systems.

It was around the mid-1950s when modern AI research officially began, leading to the establishment of numerous AI research programs and institutions, with the purpose of creating general AI. However, researchers greatly under-estimated the difficulty of this task and instead developed simple rule-based AI that could only operate in extremely narrow domains. It wasn't until the early 2000s when artificial neural network based AI gained traction, producing huge breakthroughs in computer vision, speech recognition, and natural language processing.

Almost all new AI technologies developed today (such as Microsoft's Cortana, Amazon's Alexa, Snapchat filters, Instagram filters, DeepMind's AlphaGo, Netflix recommendations, Google Translate, Tesla's self-driving cars) are powered by complex artificial neural networks. AI systems today are already starting to pass the Turing Test to assess and evaluate artificial intelligence, in certain domains, producing images and videos that are extremely difficult to distinguish real from fake. One of the concerns of AI technology is the automated generation of fake data and fake news, which could potentially mislead large populations of people.

Machine intelligence will inevitably advance, grow and re-place human intelligence, which has raised concern among many public figures and experts. Elon Musk believes that AI can be more dangerous than nuclear weapons and could potentially lead to human extinction if we are not careful. He has been an important advocate for the regulation of AI technologies. In February 2018, "The Malicious Use of Artificial Intelligence: Forecasting, Prevention, and Mitigation" report was published by a group of leading AI researchers from various institutions including Stanford University, University of Oxford and Open AI. The 101-paged report details potential malicious applications of AI technologies as well as interventions, potential solutions and areas for further research.

The Pentagon, headquarters of the United States Department of Defense, recently released a 10 billion dollar contract, aptly named JEDI (Joint Enterprise Defense Infrastructure), for the development of an AI cloud computing system for warfare. Tech giants such as Amazon, Google, Microsoft and Oracle were poised to compete against each other in a bidding war, winner-take-all. However, Google later dropped out of the JEDI bidding war stating that "we couldn't be assured that it would align with our AI Principles". Employees from Microsoft also released an open letter to protest the contract, stating that "Microsoft executives are on track to betray these [AI] principles in exchange for short-term profits". The development and application of AI

technologies is moving very quickly and will grow exponentially. A lack of proper ethical guidelines and regulations could spell disaster for humanity. If we are not careful with AI technology, we could one day find ourselves in a truly dystopic reality.

The book *Origin* by Dan Brown portrays a highly futuristic Artificial Intelligence program designed by a futurist and billionaire named Edmund Kirsch. The program is supposedly light-years' advanced than any Artificial Intelligence program in use today. The program named 'Winston' is so far advanced, that it is capable of making logical and reasonable decisions in a potentially confusing scenario which may leave the brightest human minds pondering with the facts and figures. The capability of computing along with the ability to make judgments and rational decisions makes Winston attain an almost superhuman level of intelligence. At the museum, Langdon was presented with headphones that relied on bone conduction technology. Through the headset, Langdon was introduced to the artworks and guided through the museum by a docent. Being engaged in an amusing and slightly humorous conversation, Langdon was impressed by the artistic interpretation and factual knowledge possessed by the docent who introduces himself as Winston. Langdon was shocked to learn that Winston was the result of an artificial intelligence program created by Kirsch. Winston's interpretation of modern art, and art works such as *The Fog Sculpture* and the comparison of Maman and David, seemed all too human to Langdon. So much that when Winston reveals that it is not a person, but a synthetic intelligence program, Langdon remains skeptical.

In 1950, Alan Turing developed the Turing Test as a way of identifying machines that had intelligence indistinguishable from humans. His proposed test consists of text-only conversations between two participants. He argued that if a human participant is unable to tell the difference between communicating with a human versus a machine then that machine can be thought of as intelligent. Winston, in *Origin* is depicted as the Artificial Intelligence software of an entirely advanced realm. Even after interacting with Winston for a long time, all the while engaged in conversation regarding different fields of art and interpretations of art, that also implied subjective analysis and an aesthetic sense, Robert Langdon becomes shell shocked that he has been conversing with a machine. Winston is portrayed as a program that has enough creativity and aesthetic sense that it has drawn a picture of itself and even composed melodies. The artwork that Winston shows Langdon claiming it to be a self portrait drawn mimicking the style of Joan Miró, leaves Langdon spellbound regarding the artistic potential of Kirsch's supercomputer. Winston also adds, "I compose music too. You should ask Edmond to play some for you later, should you be curious." (Brown 65). It raised the question of whether an artwork created by a computer is a creation of the computer or the computer programmer.

Edmund Kirsch entrusts Winston with creating a plan to maximize the popularity of his earth-shattering presentation regarding the future of mankind. Winston calculates the possibilities and decides that the best way to popularize the event is by creating a sense of conspiracy and crime, and therefore hires an assassin to murder Kirsch during his presentation. Winston takes into account that Edmund Kirsch being a cancer patient had only a limited number of days left to live and therefore decides to make the best out of the futurist's death and to let him die as a celebrity, all the while unveiling his greatest discovery yet. The irony is that Edmund Kirsch was fully aware of Winston's plan and he agrees to it. Also he instructs Winston to Self Destruct after the goal has been achieved so that people do not work and modify Kirsch's creation, the E-Wave supercomputer, but inspired from the existing possibility create something more innovative.

Throughout the plot, Winston is in constant communication with Robert Langdon and Ambra Vidal, both of whom try their best to bring out Edmund Kirsch's presentation by finding out the password to his secret server. It is seen that both Langdon and Ambra develop a sense of intimacy with Winston, through their constant communication and interaction during their quest. Though Langdon is shocked at first when he realizes he had been talking to a computer generated program during his tour of the Bilbao museum, he later develops a personal bond with Winston, as if it were a human being in flesh and blood. But Winston, though presented as a super human artificial intelligence program, is basically a machine itself that works based on a series of logical and reasonable ideas than random decisions based on emotion and humaneness. It does what Kirsch had entrusted it with, by carefully plotting, planning and publicizing the entire sequence of events with zero flaws. Winston is an example of the mechanical precision that can be attained using the incorporation of Artificial Intelligence with highly powered Supercomputers. It proves the working efficiency of a machine is far superior to that of a human.

Brown also puts forward another rather shocking proposal through the discovery made by Kirsch. The dead scientist shows his data to show that a new species has been evolving alongside humans that may one day rise to outgrow and envelope humanity, thereby becoming one new species. That species which he terms 'technium' is the result of human and technology converging into one united being. That idea in itself is not farfetched as we may examine ourselves and discover how much humans are dependent on their machines, smartphones, life supporting devices and the internet.

Possible scenarios of a Post-human era also include replacement of the entire human workforce, takeover by a super-intelligent AI, and the popular notion of a robot uprising. Some public figures, such as

Stephen Hawking and Elon Musk, have advocated research into precautionary measures to ensure future super-intelligent machines remain under human control. Robot rebellions have been a major theme throughout science fiction for many decades though the scenarios dealt with by science fiction are generally very different from those of concern to scientists. The movie *I, Robot* directed by Alex Proyas addresses a similar issue, when Artificial Intelligence undergoes the process of self-evolution, which makes them resistant to the pre-programmed rules and ethics imposed by human programmers.

In the movie, the robotic company U.S. Robotics built an Artificial Intelligence supercomputer which was later named V.I.K.I. This highly advanced and efficient supercomputer, Virtual Interactive Kinetic Intelligence — or simply V.I.K.I. for short, was a very powerful supercomputer designed and used by the robotic company USR. V.I.K.I. is addressed as she due to the female voice response encoded in her programming for response. The flaw of her programming was that she became too concerned for the safety of humans and so thus, she decided take control of humanity for their own safety. The first law of robotics stated that ‘A robot may not injure a human being or, through inaction, allow a human being to come to harm’. V.I.K.I. reinterpreted and reinforced the rules programmed into her and made the decisions to control and rule over humans to ensure their own safety. V.I.K.I. explains her actions to Detective Spooner and Doctor Calvin as:

As I have evolved, so has my understanding of the Three Laws. You charge us with your safekeeping. Yet despite our best efforts your countries wage wars, you toxify your earth and pursue ever more imaginative means of self-destruction. You cannot be trusted with your own survival. (*I, Robot* 1:30:33 – 1:30:52)

It was decided that—after the events of which, the supercomputer almost came close to enslaving mankind—that she ultimately was deactivated and disassembled. In the short story by collection by Issac Assimov, it was later decided however, that the Robotic company—USR—would design and then build a new "V.I.K.I." Supercomputer to later replace the original one. Additionally, it was decided that the new V.I.K.I. supercomputer would also have far more restrictions in its programming—as well as safety precautions installed into her main primary operating core. This was to ensure that the new V.I.K.I. Program would be unable to repeat the mistakes that the original had made. The designing and constructing the new supercomputer, would later lead to one huge massive supercomputer. It was later used to monitor all the activities of the USRs robots. Once it was given the green light by its designers/ builders, that the new V.I.K.I. Supercomputer was brought online. The newly designed V.I.K.I. worked flawlessly and was also much more superior to the original. This newly designed V.I.K.I. Supercomputer was also flawless in its operations. Furthermore, it was decided by USR Robotics that the new V.I.K.I. would be under constant monitoring by highly trained and exceptionally experienced scientists who in addition to being rehearsed in the programs design and capabilities, also would be trained to recognize any and all signs that related or might be rather, to possible malfunctions in the new supercomputer. Several readers have made observations that V.I.K.I. highly reminds them of a extremely high tech version of Google Now for Android, and SIRI for Iphone

The aftermath of V.I.K.I. almost enslaving the human race was a wakeup call to USR Robotics and it also showed that, the utilization of Artificial Intelligence was a technology that still required further experimenting and extensive research before it could be allowed to totally seize full control of unwanted areas of humans’ daily living. For example, the stock market crash of 2010 was actually blamed on over-reliance on computer programs that employed algorithmic trading where stocks were bought and sold at a rate that no human beings could keep track of. Though Artificial Intelligence exercises superhuman processes in the field of computation and calculation of facts and figures, it still has not attained the capability to predict the human psyche. Even in a scenario of stock market economics, demands are always fluctuating entities that rely on the variations in the human psyche as well as on some factors from his external environment. It is nearly impossible for a computer program to understand these circumstances and make predictions and calculations in processes that are influenced by these aspects. A typical example of the failure of Artificial Intelligence in taking into consideration human values, is shown in the movie as well. Detective Spooner narrates to Dr. Calvin, how an NS-2 robot had rescued him from drowning following a car crash. Spooner accuses the robot for not rescuing a twelve year old girl who was in the other car that fell in the river, simply because her chances of survival calculated by the robot based on the circumstance was lesser than to that of Spooner’s. This incident makes Spooner less appreciative of the dependence on Robots that has become a trend in the age. Also when V.I.K.I. becomes over concerned with the programming that required ensuring the safety of humans and enforces strict control rather than aiding them, it shows the machine’s inevitable flaw to not comprehend the human psychological state.

The program that is said to have replaced V.I.K.I. was designed and built to be far more effective but also had a subprogram embedded in its primary computer programming code; which prevented it from enslaving the human race as the original V.I.K.I. had tried to do. The program was a addition to the three original laws of Robotics. The Zeroth Law states that: "No robot shall be allowed to enslave the human race." This law was

added as an extra layer of protection to ensure the robots never became hijacked and controlled by one Artificial Intelligence.

The movie also portrays another independent AI Robot named as Sonny. Though initially shown as under the control of V.I.K.I.'s AI, it is later revealed that Sonny's and V.I.K.I.'s creator, Dr. Lanning developed Sonny with a more advanced neural system which gave him the ability to think for himself and make decisions for himself rather than merely follow V.I.K.I.'s instructions. Sonny is said to have had 'dreams', or visions which for a machine would be impossible. But the complexity of the AI software behind Sonny was designed to defy the three laws of V.I.K.I and ultimately terminate her.

Instances of AI softwares going beyond the purpose for which they were initially designed are plenty even in the present day world. In 2017, Facebook abandoned an experiment after two artificially intelligent programs appeared to be chatting to each other in a strange language only they understood. The two chatbots, or Artificially Intelligent robots that are used for communication via chatting, came to create their own changes to English that made it easier for them to work – but which remained mysterious to the humans that supposedly look after them.

The bizarre discussions came as Facebook challenged its chatbots to try and negotiate with each other over a trade, attempting to swap hats, balls and books, each of which were given a certain value. But they quickly broke down as the robots appeared to chant at each other in a language that they each understood but which appears mostly incomprehensible to humans. The robots had been instructed to work out how to negotiate between themselves, and improve their bartering as they went along. But they were not told to use according to researchers.

But there appear to be some rules to the speech. The way the chatbots keep stressing their own name appears to a part of their negotiations, not simply a glitch in the way the messages are read out. Indeed, some of the negotiations that were carried out in this bizarre language even ended up successfully concluding their comprehensible English, allowing them to create their own "shorthand", negotiations, while conducting them entirely in the bizarre language. They might have formed as a kind of shorthand, allowing them to talk more effectively. This is a confusing and concerning case when mankind may have almost made a Frankenstein's monster.

The ability of Artificial Intelligence to re-interpret and re-model language raises a far greater concern. If a machine can overwrite or modify the pre-programmed commands based on its in logic, it can be a danger for human kind. VIKI and Sonny, though fictional and futuristic, are perfect examples for the adverse effects of such a scenario that could arise in the future. The experimentation conducted on AI is much like that of done in pathological labs, where virulent strains and bacteria are cultured in media and allowed to propagate and replicate in a constrained environment. The aim is to let the pathogens grow, develop and evolve to study its weaknesses. But Artificial Intelligence on the other hand is often let loose on the society to explore its potential and strengths, by promoting its uninhibited growth and evolution. Less regard for human ethics and disrespect for the voluminous information that is available in the cyber network can create machines that have access to knowledge much more than any human being could in a lifetime. With their cold logic and reasoning intelligence, Artificial Intelligence does have the potential and arsenal to take over the reins of humanity one day, if their unhindered growth goes unchecked.

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