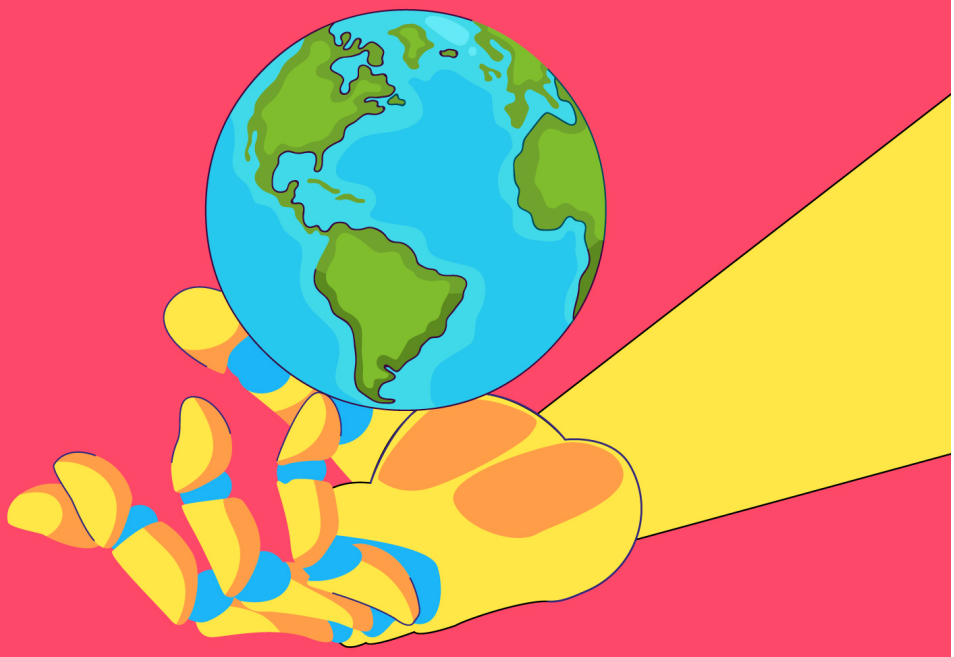
SUMMARY

NOVACENE

JAMES LOVELOCK



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Summary of “Novacene” by James Lovelock

Written by Alyssa Burnette

Learn about the dawn of artificial intelligence.

Introduction

In an episode of the NBC comedy series Superstore, a group of employees at a big-box store are frightened when they receive a new cleaning robot. When the robot turns out to have the same name as one of the employees, the group correctly reads it as a threat indicating how easily they could be replaced. One character even remarks that robots never get tired and never need breaks and therefore are the perfect employee for a capitalist society. Robots can be overworked or pushed till their breaking point and then simply discarded or sent off for repairs. Many corporations treat their human employees in this manner and-- so far from recognizing their blatant human rights violations-- seem annoyed when they're called on it. And although the big-box store depicted in the aforementioned series is fictional, it's an accurate representation of many modern companies who are embracing the arrival of artificial intelligence.

Unsurprisingly, many humans are afraid of new technology for the exact same reason. Although people would prefer not to be exploited or treated as automated cogs in a capitalist machine, this is often preferable to being unemployed. However, the author argues that being replaced by machines (or Artificial Intelligence) might not be quite so scary (or as life-changing) as we think it is! So, over the course of this summary, we'll explore his theory about the AI revolution, its relationship with climate change, and how these phenomena will impact our future.

The Dawn of a New Era

At some point in your educational career, you probably learned about the different geological epochs that are used to categorize the age of the earth. For example, you may recall hearing about the neolithic era or the paleolithic era. If you don't remember all the specifics about how this measure of time is calculated and why it's significant, don't worry; only geologists are expected to really know that! But for the purposes of this book, what you need to know is that the neolithic and paleolithic era refer back to the time of dinosaurs and very early civilizations.

By contrast, the author asserts that today's humans live in what is known as the "Anthropocene" epoch. The Latin prefix "anthro" refers to anything related to humans or the study of humanity (that's how we got the word "anthropology!") So, this means that the Anthropocene age can be interpreted as being the era of humans. Put simply, this is the age when humans stopped fighting for survival (in the fashion of our neanderthal ancestors) and became major players on the cosmos' stage. Because we are now the dominant species (as opposed to dinosaurs or wooly mammoths), it's only fitting that the current age is categorized in terms of human impact and accomplishments. But what the author finds interesting is the fact that the Anthropocene age is significantly shorter than those that came before it. To put that in context, the term epoch is used to classify a period of tens of millions of years. So, not just a few years or even a million years, but multiple millions! That's what we expect of an epoch, but that's not the case with the Anthropocene.

In fact, it's actually getting shorter and drawing to a close in preparation for the transition to a new age. The author posits that the arrival of a new life form has made this transition necessary. Yes, you really read that right-- a new life form. If you're wondering how or why that's possible, the answer is both shocking and simple. That's because new technological advances have elevated artificial intelligence from a simple computer program or robot to a life form that will soon be capable of thinking on its own. We know this is

possible because we've already seen the advent of programs like AlphaZero in 2016. If you're not familiar with the story, AlphaZero is a self-sufficient computer program designed by a company called DeepMind. Based in London and owned by Google, DeepMind is a cutting-edge AI lab dedicated to furthering the study of artificial intelligence.

DeepMind skyrocketed to fame in 2016 when they announced that they had designed a program that transcended the boundaries of traditional artificial intelligence programs. How? Well, most robots have to be programmed by humans and they are coded to follow a specific pattern. For example, many AI robots have been programmed to perform simple tasks or play games like chess by playing against other computer programs. But DeepMind created a program that could think on its own and taught itself to play the historic Asian board game Go. In fact, AlphaZero not only taught itself, it continued to learn new strategies by playing against itself! And as the program grew smarter and smarter, the inventors at DeepMind came up with a plan to test AlphaZero's potential: they staged a match against world champion Lee SeDol. Over the course of five games of Go, AlphaZero played against game master Lee SeDol-- and won every single time!

Hundreds of major newspapers and reporters covered the match and news of AlphaZero's victory made headlines around the world. Netflix even made a documentary about it! DeepMind's invention was heralded as the dawn of an incredible new era in human history. It was also regarded as proof that artificial intelligence could one day become smart enough to not only surpass human intelligence, but to make humans obsolete. But is that really true? And should we be worried? We're going to explore the answers to these questions and more throughout the course of this book.

We Cannot Study Artificial Intelligence Without Also Studying Climate Change

Because terms like “neolithic,” “paleolithic,” and “anthropocene” are defined as geological measurements of time, they are intimately connected to the earth and its development. In fact, they literally measure time in relation to the changes in the earth. This means that the study of geological measurements of time cannot be separated from the study of environmental issues like climate change. As a result, the author argues that we must study the two together if we want to cultivate a nuanced understanding of the world and our place within it. He therefore devotes a significant portion of his research to climate change and its impact on the earth. And although you might be familiar with the current effects of climate change, you might not know much about how temperatures were changing millions of years ago.

Sure, we all know about the Ice Age (even if only through its animated representation), but did you know that, 55 million years ago, the earth experienced global warming on a terrifying scale? This phenomenon occurred during what’s known as the Paleocene Era and it was called the Eocene Thermal Maximum. This meant that the temperature of the entire planet increased by 5 degrees Celsius. Researchers discovered this in 1980 when they examined Antarctic sediments and found the remains of crocodiles. The presence of these fossils indicates that, at one point, these Antarctic waters weren’t quite so chilly. In fact, researchers assert that polar regions were once warm enough for crocodiles to peacefully flourish in their waters! However, as we know, the earth’s temperatures plummeted again, resulting in the glacial Antarctic regions we now know today. So, what does that mean for the future of our planet and the developments of climate change?

The author posits that the earth is now significantly more fragile, which means it can no longer survive such rapid changes in temperature. In fact, the author affirms that if the earth were to experience another massive heat

wave, life on earth would be wiped out and the planet would become uninhabitable in the same fashion as Mars or Venus. But that's why he believes that artificial intelligence could help. Robots would be unaffected by human motivations such as power, greed, or political persuasions. Instead, a computer program would be able to weigh the objective facts and acknowledge that we simply cannot afford to ignore the risks posed by climate change. Artificial intelligence would therefore be impartial and motivated to fix the damage that humans have created. As a result, the author believes that even if robots did "take over the world," they would do so in a helpful fashion that might neutralize human errors and guide us towards a more sustainable future.

The Novacene Age

So, if the Anthropocene epoch is fading and we're moving toward a future where AIs take over, what does that mean? And what will the new era look like? The author calls the future "the Novacene age," which literally means "the new age." Citing the example of AlphaZero, he affirms that AIs have the potential to possess infinite intelligence. As a result, they will be about a million times smarter than humans and more capable of processing information and accomplishing tasks. This means that as cyborgs evolve and grow, cyborgs will supplant humans as the dominant intelligent life forms on earth. And because he believes that cyborgs will eventually grow smart enough to design and clone themselves, they will no longer need us in order to exist. As a result, the author posits that it's possible that cyborgs will replace humans almost entirely.

However, as we imagine this future, the author observes that humans often envision aliens and AIs as being vaguely humanoid in appearance. We assume that they will somehow look like us, with a traditional structure that includes both a face and a body. But Lovelock reminds us that this assumption is not necessarily based in reality. Instead, it stems from a couple of human fallibilities. On one hand, it might be simple vanity; we assume that we are already the highest life form and that future intelligent life forms are inherently bound to resemble us. But it's also possible that we might simply be scared. The unknown is almost always frightening and few things are more frightening to the human mind than the concept of being replaced by machines. We may therefore attempt to assuage our fears by envisioning a life form that is humanoid-- and therefore relatable-- in appearance.

But no matter what our motivations are, the author reminds us that we can't necessarily claim to know what cyborgs will look like in the future. In fact, he doesn't attempt to suggest that he has the answers himself. Lovelock acknowledges that he has no idea what form artificial intelligence will one day take, but he does concede that it might not possess a physical

form at all. In fact, it's entirely possible that AIs might never exist outside of a computer; rather, they might function as supremely intelligent programs that need electronic hosts to survive. They might not have a soul, a face, or a conscience, or any of the other things we identify with intelligent life forms. But because cyborgs will be capable of processing information at a far greater capacity, they will most certainly be alive in a technical sense and they will inevitably surpass us.

However, that doesn't necessarily mean that the robots will turn against us, living in the future depicted by so many sci-fi films. In fact, because their intelligence will outmatch ours, the author believes that we will be little more than background details. Human beings might not cease to exist, but we will no longer be dominant; instead, we will carry out our lives among the machines. In fact, it's highly possible that our quality of life will be better as a result of their presence! However, the author observes that although there are a plethora of unknown possibilities when it comes to the technical details, one thing is fairly certain: the Novacene Age will be the final phase of life on earth. Either they will be able to repeal the effects of climate change and carry us forward into a brighter future or they won't. The earth may become uninhabitable; it may be too hot even for machines to exist. But regardless of AIs' relationship with climate change, the author believes that another, higher life form will never evolve. Once artificial intelligence reaches its peak and machines are able to design, build, and reproduce themselves, we will see improvements in the current species rather than an evolution of an entirely new and better one.

Final Summary

For many, the advent of artificial intelligence inspires fear. We can think only of movies like Terminator and the promise that we will be erased or replaced by machines. But the author posits that the evolution of AI isn't necessarily something to fear. In fact, the dawn of the Novacene Age should be viewed as a positive update to the human experience! The author believes that the presence of a superior intelligent life form can only improve our quality of life because it will lead to new technological advancements and a possible solution to climate change.