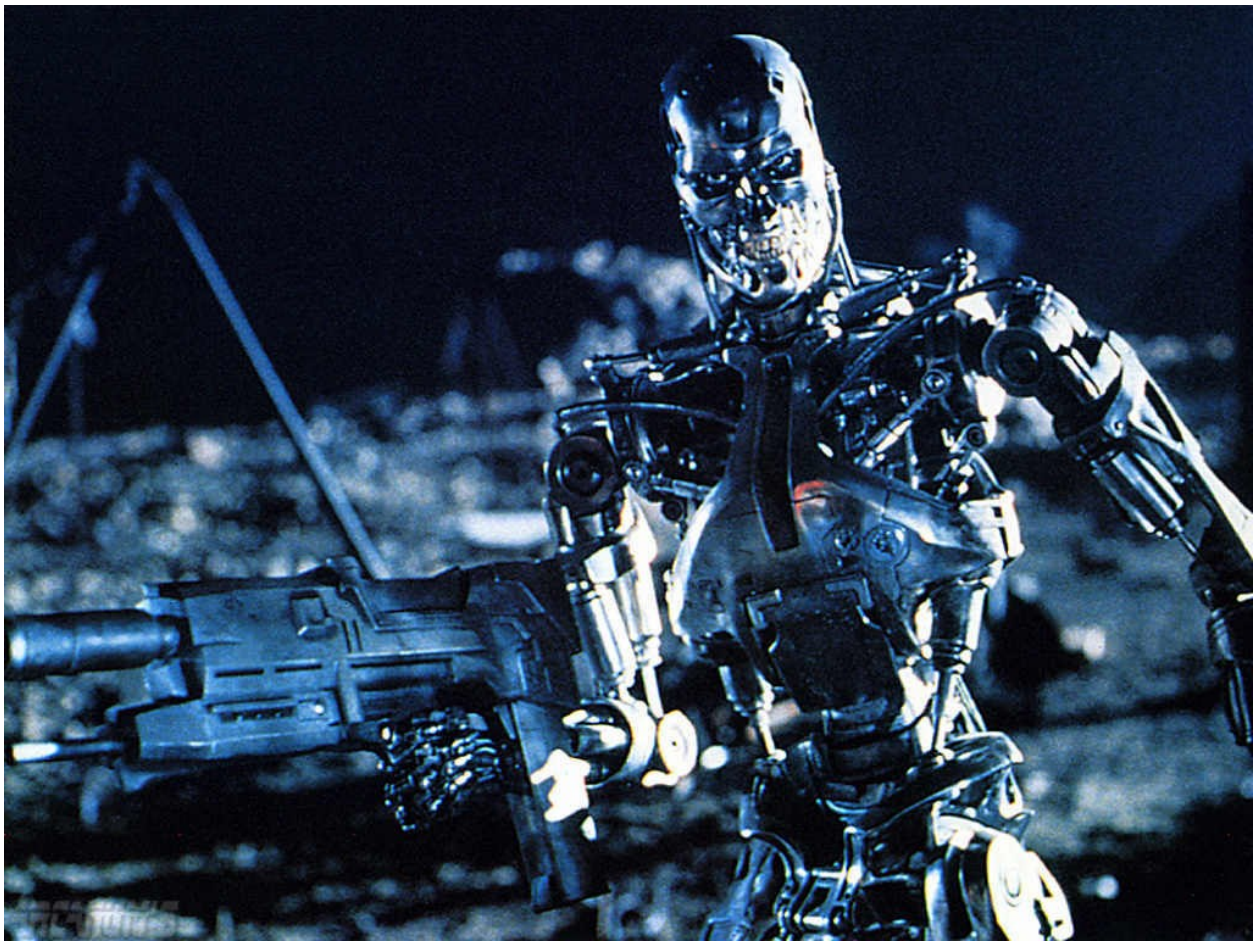


The Singularity is Near

Is Humanity on the Verge of Greatness—or Destruction?

We are in a period of rapid technological development. Some smart people think technology is our great hope. With new intelligent machines we can wipe out famine, reduce work, live better, and be happier. Other, equally smart people, think there are many dangers in some of our rapidly growing technologies. They worry that if we build machines that are smarter than we are, they might get out of control and could destroy humanity. These concerns are quite serious. It may not be reported on television or talked about around the kitchen table, but super intelligent machines are just around the corner and they will change your life.

Decoda
LITERACY SOLUTIONS

Smart Machines Gone Wild

The Stuff of Science Fiction

It's one thing to a have a fast computer with lots of ram, a big hard drive, and a fast connection to the Internet. And it's quite another to have a computer that thinks for its self, has control over other machines, and doesn't follow instructions.

Forbidden Planet (1956) was one of the first and most successful science fiction movies that raised serious concerns about super intelligent machines. An ancient civilization (the Krell) had built an incredible machine that met all their needs. It was able to connect to the minds of the race and produce anything they thought about. But here's the problem: The machine's creators had forgotten about their unconscious mind (referred to as the "Id" by Sigmund Freud). The great intelligent machine responded to its creators deepest, most hidden, and often dangerous desires. And along the way it destroyed the civilization.

There are many other examples of smart machines gone wild. Remember HAL in *2001 a Space Odyssey* and then there's the bad robot gone good: T-2 in *Judgment Day*. Whether our smart machines will be our saviors or destroyers is up in the air and the question isn't just for fiction writers.

"The Singularity is Near"

This is the title of a best selling book by author and scientist, Ray Kurzweil (2005).

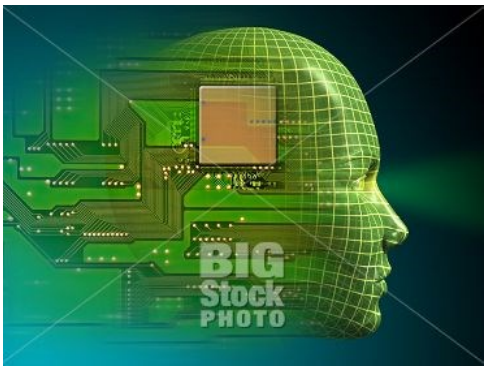
The word "singularity" has many different meanings. For our purpose, it can be defined as a singular point in human history where several technologies come together to produce machines that are smarter than humans.

According to Kurzweil, when the Singularity occurs, the world will never be the same.

Can this really happen? Will it be possible to make machines that can actually think—and think better than humans? Some top scientists working in diverse fields say the answer is absolutely YES!

Not only is this possible, but many scientists think it will happen soon. The reason is that certain technologies are growing at an ever increasing rate. By around 2050, these technologies are projected to meet the following accomplishments:

- Genetics research provides increasing information about how the human organism works based on a simple code. Cloning and cell manipulation will help people live longer with less illness.
- Nanotechnology will allow us to rebuild the world and ourselves one molecule or atom at a time. Computers will be infinitely smaller and more powerful. We'll be able to make repairs on our bodies and brains.
- Artificial Intelligence will help us understand how the mind thinks and program this ability into machines with more power and speed. Scientists will reverse engineer the human brain and build its capabilities into machines that have far greater processing power, far greater storage, and the ability to share information with similar machines around the world.

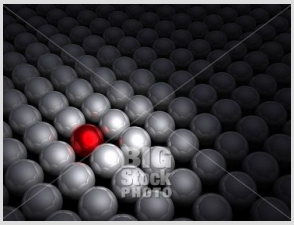


If these machines get the ability to reproduce and improve themselves, will humans become irrelevant? Some scientists think we will merge with the machines. Humans will become nodes on a global super computer. One wonders: What would the Krell have to say about that?

Want to Hear Something Really Scary?

Nanotechnology is one of technologies contributing to the Singularity. The goal of nanotechnology is to build complex machines at the molecular level. This could be very helpful in treating illness and creating shape-shifting materials.

The Grey Goo Scenario



One of the most controversial aspects of nanotechnology is the possibility of creating self-replicating nanorobots. These are tiny machines that have the intelligence and ability to create an infinite number of themselves..

Dr. Eric Drexler is often credited as being the "father of nanotechnology." He once raised the fear that self-replicating nanorobots could be made to consume carbon molecules and create more and more of themselves.

The problem is that all life on the planet is made of carbon. The danger is that these nanorobots could get out of control and consume the world in less than a day. All that would be left is a grey goo.

Author, Michael Crichton, presented this frightening possibility in his novel, *Prey*. Although Dr. Drexler now thinks this would be unlikely, others are less sure. As of now, research on self-replicating nanorobots has been largely curtailed until the problem can be looked into further.

The Singularity is Near | Key Terms

artificial intelligence	The intelligence of machines and the branch of computer science that wants to create it.
genetics	A branch of biology that studies the molecular basis for inheritance from one's parents.
Id	One of three functions of the mind described by Sigmund Freud. According to Freud, the Id is the unconscious mind that controls basic drives.
nanotechnology	A field in science that seeks to create extremely tiny machines that work at the molecular and atomic level.
unconscious mind	The part of the mind where memories are stored and mental activity occurs but the person is not aware of the activity.
verge	Coming close to. "He was on the verge of an insight but forgot what he was thinking about."
Ray Kurzweil	Author, scientist, and futurist who promotes the concept of the coming Singularity. He invented the music synthesizer, the flat-bed scanner, and a text-to-speech synthesizer, among other devices and programs.
Technological Singularity	A theoretical point in the future where there will be extraordinary technological growth, particularly in the ability of machines to think.

Discussion Points

1. Neuroscientists (people who study how the brain works) think that everything we think, feel and do is controlled by our brain. Scientists are trying to build machine intelligence so that it will work similar to our brains. Do you think it will be possible for machines to fall in love, get angry. or bored? What would this mean for humans?
2. In 1940, science fiction writer, Isaac Asimov came up with three Laws for Robots that he thought should be built into their programming. He thought these would be sufficient to protect humans from smart machines. Do you think these are enough to protect humans? Can you think of other laws that should be included?
   - First Law: A robot may not injure a human being, or, through inaction, allow a human being to come to harm.
   - Second Law: A robot must obey orders given it by human beings, except where such orders would conflict with the First Law.
   - Third Law: A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.