

Commentary: Living forever

Praised as the Thomas Edison of the 21st century, Ray Kurzweil was selected as one of "16 revolutionaries who made America," along with the great inventors of the past two centuries.

Forbes magazine called him "the ultimate thinking machine" and The Wall Street Journal dubbed him "the restless genius." Kurzweil is in the National Inventors Hall of Fame, With 12 honorary doctorates and the world's largest prize for innovation - the \$500,000 Lemelson-MIT award. Kurzweil, now 57, published what is arguably the most blogged-about book of 2005, a 640-page blockbuster: "The Singularity Is Near," a road map to "a unique event with singular implications," or some form of immortality for those younger than 50 today.

Burwell's latest futuristic tome is the sequel to his last bestseller, "The Age of Spiritual Machines: When Computers Exceed Human Intelligence," which posited that the ever-accelerating rate of technological change would lead to computers that would rival the full range of human intelligence. He now takes his readers to the next step in this inexorable evolutionary process: the fusion of human brain and machine. Thus, "the knowledge and skills embedded in our brains will merge with the vastly greater capacity, speed and knowledge-sharing ability of our own creations."

The event Kurzweil envisages - the "singularity" - is when technological change becomes so rapid and profound that our bodies and brains merge with our machines. Singularity depicts what life will be like after the brain-machine fusion takes place and our experiences shift from real reality to virtual reality.

This moment that Kurzweil sees coming 20 years hence is when our intelligence becomes non-biological and trillions of times more powerful than unaided human intelligence. What this will mean for humanity is that aging can be reversed, pollution eradicated, hunger solved and our bodies and the environment transformed by nanotechnology that will also overcome the limitations of biology - and death.

Kurzweil takes human evolution far beyond today's most optimistic forecasts. These hold that anyone born today will live to be 130 and productive to 110, and those born in the 22nd century will live to 250. The glass-half-full-and-filling geomancers of the human genome research world can perceive "immortality" in the 23rd century. Kurzweil's sees the same evolution achieving a similar breakthrough for the children and grandchildren of the post-World War II baby boomers.

Bill Gates praises futurist Kurzweil and his "Singularity" as "the best person I know at predicting the future of artificial intelligence." He has a 20-year track record of accurate predictions. Bill Joy, co-founder and former chief scientist of Sun Microsystems, is filled with foreboding about the perils of humanity's technological future. But Joy still concedes "The Singularity Is Near" is "a clear call for a continuing dialogue to address the greater concerns arising from these accelerating possibilities."

What worries Joy in his book "Why The Future Doesn't Need Us" is that "we are being propelled into this new century with no plan, no control, no brakes."

Joy has a point. There is a growing abyss between the economic, scientific and technological knowledge of the masses and their representatives on the one hand, and, on the other, the knowledge that is required to make logical, rational and moral decisions.

Kurzweil writes that "as we reverse engineer our bodies and brains, we will be in a position to create comparable systems that are far more durable and that operate thousands to millions of times faster than our naturally evolved systems." The computational capacity needed to emulate human intelligence, he says, "will be available in less than two decades." Once a computer achieves a human level of intelligence, "it

will necessarily soar past it." A key advantage of "nonbiological intelligence is that machines can easily share their knowledge."

Nanotechnology, now 10 years ahead of predictions and still shooting ahead, "will ultimately enable us to redesign and rebuild, molecule by molecule, our bodies and brains and the world with which we interact," Kurzweil writes.

Kurzweil the inventor developed the first omni-font optical character recognition; the first print-to-speech reading machine for the blind, the first text-to-speech synthesizer;

the first music synthesizer capable of re-creating the grand piano and other orchestral instruments; and the first commercially marketed large-vocabulary speech recognition. He has also founded and developed nine businesses in music synthesis, speech recognition, reading technology, virtual reality, medical simulation and cybernetic art.

"Singularity," John Casti of Nature wrote, is "a mind expanding account (that) is nothing less than a blueprint for how to shove Homo sapiens off center-stage in evolution's endless play...if you buy into Kurzweil's Law of Accelerating Returns - and all empirical evidence currently available supports it completely - then the replacement of humans by machines as the primary intellectual force on Earth is indeed imminent."

George Gilder wrote, "Kurzweil's ideas make all other roads to the computer future look like goat paths to Patagonia."

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