

Author says humans will one day merge with technology

"As the most important phenomenon in the universe, intelligence is capable of transcending natural limitations, and of transforming the world in its own image," Ray Kurzweil asserts at the beginning of his latest book, "How to Create a Mind: The Secret of Human Thought Revealed."

"In human hands, our intelligence has enabled us to overcome the restrictions of our biological heritage and to change ourselves in the process," he continues. "We are the only species that does this."

Kurzweil is the author (or co-author) of six previous books, including "The Age of Intelligent Machines," "The Singularity is Near: When Human Beings Transcend, Biology" and "The Age of Spiritual Machines: When Computers Exceed Human Intelligence." He has 19 honorary doctorates and has been recognized for his achievements by three U.S. presidents: The subject of two recent documentaries, Kurzweil was also the principal inventor of the first CCD flat-bed scanner, the first text-to-speech synthesizer and the first print-to-speech reading machine for the blind.

As might be expected, "How to Create a Mind" is extensively researched, with no less than 36 pages of source notes at the conclusion of the 11 chapters that constitute the main text. It is apparent from page one that Kurzweil is perhaps one of the smartest people in the world; at the same time, he is able to express his ideas in a way that those who do not have an extensive background in what he is writing about are still able to follow.

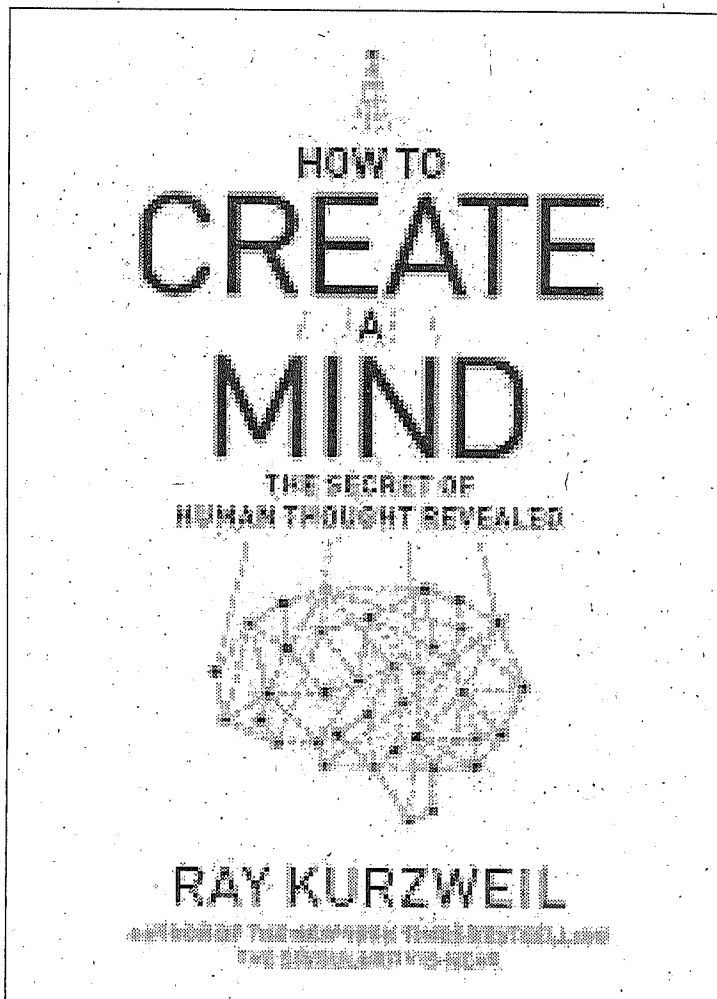
Kurzweil is certain that human beings are on the verge of experiencing a major transformation driven by our exponential advances in technology over the last century.

He calls this next step in our evolution "the singularity," and argues persuasively that it is our destiny to eventually merge — in one way or another — with the hardware/software we have created and continue to enhance. In order to explain how this will occur, the author goes into considerable detail as he describes both the physiology of the brain as well as the architecture upon which much of our modern technology is built.

Kurzweil feels that our ability to reverse engineer the brain is now within the realm of possibility. Moreover, when we reach this milestone in our understanding of how the mind ultimately emerges from the brain, it will set the stage for the next phase of our development as a species.

In response to his naysayers, Kurzweil points to several accomplishments that were once thought to be beyond our capability — such as the mapping of the human genome.

Although I found the entire book to be extraordinarily thought-provoking, a couple of chapters definitely stand out as being unusu-



"How to Create a Mind: The Secret of Human Thought Revealed" by Ray Kurzweil. New York, NY: Viking, 2012, 336 pages, \$27.95.

ally remarkable. In Chapter 6, "Transcendent Abilities," the author tackles a variety of issues related to the neocortex, the region of the brain responsible for abstract thought and higher order thinking. One of the more intriguing aspects of Kurzweil's thesis is his unique perspective on the intrinsic interaction between human intelligence and complex emotions such as love.

"After decades of being together, a virtual other exists in the neocortex such that we can anticipate every step of what our lover will say and do," Kurzweil explains. "Our neocortical patterns are filled with the thoughts and patterns that reflect who they are. When we lose that person, we literally lose part of ourselves."

"This is not just a metaphor — all of the vast pattern recognizers that are filled with the patterns reflecting the person we love suddenly change their nature," he adds. "Although they can be considered a precious way to keep that person alive within ourselves, the vast neocortical patterns of a lost loved one turn suddenly from triggers of delight to triggers of mourning."

Chapter 10, "The Law of Accelerating Returns Applied to the Brain," also had me thinking about the future in a way I had not anticipated before reading this book. Kurzweil has a sneaky way of sucking you into his line of reasoning before you are fully aware that it is happening.

"The 'cellphone' in my pocket is a million times less expensive yet thousands of times more powerful than the computer all the students and professors at MIT shared when I was an undergrad-

uate there," Kurzweil observes. "That's a several billion-fold increase in the price/performance over the last 40 years, an escalation we will see again in the next 25 years, when what used to fit in a building, and now fits in your pocket, will fit inside a blood cell. In this way we will merge with the intelligent technology we are creating."

An especially appealing feature of "How to Create a Mind" is Kurzweil's inclusion of an entire chapter on the major objections (both scientific as well as philosophical) to the primary theory he is attempting to advance. And although his particular bias is never in question as he works to deconstruct the criticisms this kind of book predictably generates, he does at least acknowledge that the future he sees as inevitable has not yet gained widespread acceptance from either the scholarly community or the public at large.

In the final analysis, "How to Create a Mind" is a good read. Kurzweil can get a little "out there" at times, but I never lost interest or dismissed anything he was proposing as necessarily irrational or beyond our reach. I am still not convinced that our mental experience of the world can be explained entirely in terms of physical realities, although I can now see what shape such an explanation might take. I recommend it highly, particularly if you like this kind of book.

— Reviewed by Aaron W. Hughey, Department of Counseling and Student Affairs, Western Kentucky University.