New book exposes AI's limits

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Artificial Intelligence

A Guide for Thinking Humans

Melanie Mitchell

Ever since its origin in post-war research, AI has been subject to profound hyperbole, rapturous prognostications, and projected nightmares. In 2019, things have once again reached fever pitch in what science board co-chair and External Professor Melanie Mitchell wryly notes is a hype cycle that routinely ripples through her fellow computer scientists and those who fund them. Her illuminating new book, *Artificial Intelligence: A Guide for Thinking Humans*, lays bare the inner workings of these potent tools, exposing their realistic limits and patiently detailing our deployment errors. It is a solid history of how we got from pocket calculators to facial recognition and self-driving cars, a lucid tour of how these systems operate, and a tempered read on just how far we have to go before we're obsolete.

Mitchell, a professor of computer [science](#) at Portland State University, has spent decades studying AI and writes with the measured understanding of someone who has lived on the volcano. As a Ph.D. student at the University of Michigan, she worked with her advisor Douglas Hofstadter to develop a computer program that makes analogies. As one of the first resident faculty at SFI, Mitchell pioneered the Institute's adaptive computation program and also initiated its online education platform, Complexity Explorer.

In the tradition of Mitchell's first book, which popularized many of the central concepts of complexity science and won the 2010 Phi Beta Kappa Award in science, *[Artificial Intelligence: A Guide for Thinking Humans](#)* presents a plain-speak, human-readable primer on the new technologies that have transformed human culture and society, and uses

that foundation to caution the reader against placing more trust in automated systems than they deserve.

With sections on computer vision, robot play, [natural language](#), and "the barrier of meaning" between [deep learning](#) and common sense, the book cuts through mystique and hype, rendering ethical and scientific puzzles in crisp detail. A Guide for Thinking Humans is a subtitle no doubt intended to provoke the reader into learning. But it's also a wise consolation and encouragement to those of us with boring old meat brains to not take our humanity for granted.

It is going to be a while before machines can think, and until then we need more people who can think for our machines, and for ourselves.

More information: us.macmillan.com/books/9780374715236

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