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Inventive Minds

Marvin Minsky on Education

By: Marvin Minsky

Edited by: Cynthia Solomon, Xiao Xiao

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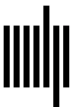
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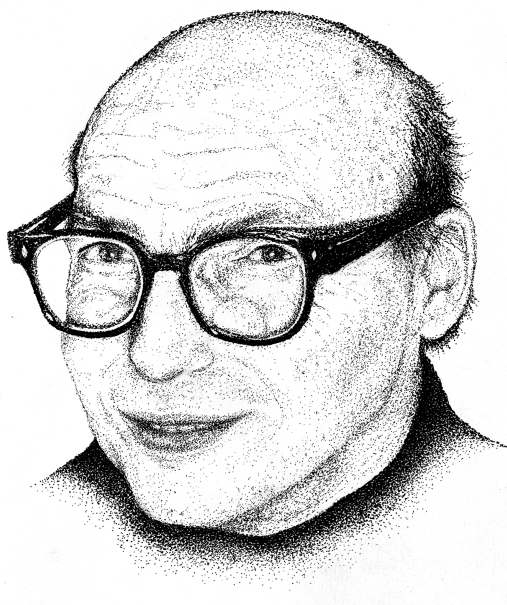
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A Short Biography of Marvin Minsky



Marvin Minsky was Toshiba Professor of Media Arts and Sciences and Professor of Electrical Engineering and Computer Science at the Massachusetts Institute of Technology. His research has led to both theoretical and practical advances in artificial intelligence, cognitive science, neural networks, and the theory of Turing Machines and recursive functions. He made other contributions in the domains of graphics, symbolic mathematical computation, knowledge representation, commonsensical semantics, machine perception, and both symbolic and connectionist learning.

Professor Minsky was a pioneer in robotics and telepresence. He designed and built mechanical arms, hands with tactile sensors, and one of the first Logo “turtles.” These influenced many subsequent robotic projects. He was also involved with advanced technologies for exploring space and was a consultant on Stanley Kubrick’s *2001: A Space Odyssey*.

In 1951, he built the first randomly wired neural network learning machine (called SNARC, for Stochastic Neural-Analog Reinforcement Computer), based on reinforcing synaptic connections. In 1956, when a Junior Fellow at Harvard, he invented and built the first Confocal Scanning Microscope, an optical instrument with unprecedented resolution and image quality.

After the early 1950s, Minsky worked on using computational ideas to characterize human psychological processes, and also on endowing machines with intelligence. In the early 1970s, he and Seymour Papert began formulating a theory called the Society of Mind that combined insights from developmental child psychology and their experience with research on artificial intelligence. The Society of Mind proposes that intelligence is not the product of any singular mechanism but comes from the managed interaction of a diverse variety of resourceful agents.

In 1985, Minsky published *The Society of Mind*, a book in which 270 interconnected one-page ideas reflect the structure of the theory itself. In 2006, he published a sequel, *The Emotion Machine*, which proposes theories that could account for human higher-level feelings, goals, emotions, and conscious thoughts in terms of multiple levels of processes, some of which can reflect on the others. By providing us with multiple different “ways to think,” these processes might account for much of our uniquely human resourcefulness.

In addition to his technical achievements, Marvin was an accomplished classical pianist. He taught himself to improvise in the style of Bach and Beethoven, and continued to play until his death on January 24, 2016.

Marvin’s own formal schooling played an important role throughout his life, and so we list it here.

The Fieldston School, New York

Bronx High School of Science, New York

Phillips Academy, Andover, Massachusetts

United States Navy, 1944–1945

B.A. Mathematics, Harvard University, 1946–1950

Ph.D. Mathematics, Princeton University, 1951–1954

Junior Fellow, Harvard Society of Fellows, 1954–1957

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