Can a Computer Think? – Reading List

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General

Jack Copeland, *Artificial Intelligence: A Philosophical Introduction*, Blackwell, 1994. *Excellent elementary introduction.*

Daniel Crevier, *AI: The Tumultuous History of the Search for Artificial Intelligence*, BasicBooks, 1993. *Good history, unfortunately now out of print.*

Pamela McCorduck, *Machines Who Think*, W. H. Freeman, 1979. *History of AI from an AI booster.*

Douglas Hofstadter, *Gödel, Escher, Bach*, Basic Books, 1979. *Pulitzer-prize winning musings on brains, computers, and self-reference.*

Stephen R. Graubard, ed., *The Artificial Intelligence Debate: False Starts, Real Foundations*, MIT Press, 1988. *Fourteen essays by Seymour Papert, Daniel Dennett, and others.*

Marvin Minsky, *The Society of Mind*, Touchstone, 1985.

The Turing Test

Alan Turing, Computing machinery and intelligence, *Mind* **59** (1950) 433–460. Reprinted in Alan Ross Anderson, ed., *Minds and Machines*, Prentice-Hall, 1964, pp. 4–30. Also available at `http://www.abelard.org/turpap/turpap.htm`. *The famous paper where the Turing test is described.*

Geoffrey Jefferson, The mind of mechanical man, *British Medical Journal*, June 25 1949, 1105–1110. *Turing's paper was written in part as a response*

to this one.

Loebner prize, see `http://www.loebner.net/Prizef/loebner-prize.html`.

Richard Wallace, Alice (winner of 2000 Loebner prize), see `http://alicebot.org:2001`. *Great fun, but doesn't pass the Turing test.*

Can Computers "Think"? 28.3% Said Yes!, web page available at `http://users.erols.com/msagi/delphi-ai.html`

The AI Skeptics and Rebuttals

Hubert L. Dreyfus, Why computers must have bodies in order to be intelligent, *Review of Metaphysics* **21** (1) (September 1967), 13–32. *See if you can spot all the reasoning flaws in this silly article.*

Hubert L. Dreyfus, *What Computers Still Can't Do: a Critique of Artificial Reason*, MIT Press, 1992. *Revised edition of What Computers Can't Do (1972, 1979). Dreyfus doesn't admit many of his earlier claims were wrong.*

John McCarthy, Ascribing mental qualities to machines, in Martin Ringle, ed., *Philosophical perspectives in artificial intellgence*, Humanities Press, 1979, pp. 161–195. Also available from `http://www-formal.stanford.edu/jmc/ascribing.html`. *The paper where thermostats have beliefs.*

Seymour Papert, The artificial intelligence of Hubert L. Dreyfus: a budget of fallacies, MIT AI Lab memo 154, January 1968, available from `ftp://publications.ai.mit.edu/ai-publications/0-499/AIM-154.ps`. *Amusing and devastating polemic on Dreyfus.*

John R. Searle, *Minds, Brains, and Science*, Harvard University Press, 1984. *Searle's book-length discussion of the Chinese room.*

John R. Searle, Minds, brains, and programs (with commentary and rebuttal from many authors), *Behavioral and Brain Sciences* **3** (1980), 417–457. Also see "Reflections", in Douglas R. Hofstadter and Daniel C. Dennett, *The Mind's I: Fantasies and Reflections on Self and Soul*, Basic Books, 1981, pp. 373–382. *Chinese room argument and rebuttals.*

John R. Searle, Is the brain's mind a computer program?, *Scientific American*, January 1990, pp. 26–31.

Paul M. Churchland and Patricia Smith Churchland, Could a machine think?, *Scientific American*, January 1990, pp. 32–37.

Roger Penrose, *The Emperor's New Mind*, Oxford University Press, 1989.

Roger Penrose, Précis of *The Emperor's New Mind* (with commentary and rebuttal from many authors) *Behavioral and Brain Sciences*, **13** (1990), 643–705.

Hilary Putnam, Review of Roger Penrose, *Shadows of the Mind*, *New York Times Book Review*, November 20 1994, p. 7. Reprinted in *Bulletin of the American Mathematical Society*, **32** (1995), 370–373. *Devastating review of Roger Penrose.*

Mortimer Taube, *Computers and Common Sense: The Myth of Thinking Machines*, Columbia University Press, 1961. *Sour and pretentious critique of artificial intelligence; one of the first to be published.*

Marvin Minsky, Why people think computers can't, *AI Magazine* **3** (4) (Fall 1982). Also available at
`http://www.ai.mit.edu/people/minsky/papers/ComputersCantThink.txt`.

Hugo Gernsback, Can Computers Think?, c. 1963. Available at
`http://www.twd.net/ird/forecast/dec98think.html`.

Consciousness and Self-Awareness

Gordon G. Gallup, Jr. Self-awareness and the emergence of mind in primates, *American Journal of Primatology* **2** (1982), 237–248. *Discusses results of a famous test for self-awareness on primates.*

Francis Crick, *The Astonishing Hypothesis: The Scientific Search for the Soul*, Simon & Schuster, 1994. *The title doesn't really reflect the contents — it's really about the human visual system.*

James T. Culbertson, Some uneconomical robots, in C. E. Shannon and J. McCarthy, eds., *Automata Studies*, Annals of Mathematics Studies No. 34, Princeton University Press, 1956, 99–116.

Daniel Dennett, *Consciousness Explained*, Little, Brown, 1991. *Fascinating discussion by a prominent philosopher.*

Computers and Chess

Bruce Weber, "Mean Chess-Playing Computer Tears at Meaning of Thought", *New York Times*, February 19, 1996. Also at `http://is.gseis.ucla.edu/impact/w96/News/News7/0219weber.html`.

Monty Newborn, *Kasparov versus Deep Blue: Computer Chess Comes of Age*, Springer, 1997. *Interesting history for chess-lovers.* Also see `http://www.research.ibm.com/deepblue/`.

Valdemar W. Setzer, Reflections on computer chess, *Southern Cross Review*, No. 2, November-December 1999. Also available from `http://www.ime.usp.br/~vwsetzer/chess.html`. *He says "The logical conclusion is that the human being is not a machine" but his argument is not logical.*

Accomplishments of Computers

Ray Kurzweil, *The Age of Spiritual Machines*, Viking, 1999. *Interesting, personal, and very speculative view of what computers have accomplished and will accomplish in the future.*

David Cope, *Experiments in Musical Intelligence*, A-R Editions, 1996. Also see `http://arts.ucsc.edu/faculty/cope/home` and `http://arts.ucsc.edu/faculty/cope/songs`.

John Hubner, The well-tempered computer, *Silicon Valley Magazine*, May 24, 1998. Also available at `http://www.svmagazine.com/1999/week46/features/Story02.html`.

Harold Cohen, Aaron, (the painting robot), see `http://www.scinetphotos.com/aaron.html`

Russell L. Andersson, *A Robot Ping-Pong Player: Experiment in Real-Time Intelligent Control*, MIT Press, 1988.