

# AI and the Popular Press

**T**he robot sits pensively, metallic chin in hand, in the classic pose of *The Thinker*. "Machines That Think," the magazine's headline proclaims. "They're Brewing a Revolution." Yet elsewhere on the same cover I am aptly warned that "In Today's Marketplace, It's Hype, Hype, Hype."

Hype it is, and this is by no means the only example of it. The misrepresentation of the current state of artificial intelligence (AI) in the popular press is nothing less than shocking. As someone working in the field of AI, trying to write programs that exhibit the most basic elements of intelligent behavior, I am infuriated by the inflated press it's getting.

What is the actual state of AI research? Do we have faith in the recent newspaper report that "computers are starting to outthink the experts"? What about physicist Robert Jastrow's astounding prediction (in *Science Digest*, June 1982) that "by 1988 or thereabouts, portable, quasi-human brains made of silicon or gallium arsenide . . . will be an intelligent electronic race . . . little electronic friends that can solve all your problems"? Will this really happen in a scant four years?

I say no. To my mind these are examples of regrettably irresponsible journalism regarding AI. Writers and advertisers use words like "intelligent" and "understanding" to describe not only programs but disk drives, networks, chips, even noncomputer devices like telephones and washing machines. Most people know that washing machines are not actually intelligent and that the word is used as an attention-grabbing

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trick. But when a weekly business magazine reports, "Systems that immediately understand everyday English are making computers accessible to anyone who can write," we have a problem. No respected AI researcher claims that any present-day program comes close to what we mean when we say a person understands language.

While it's difficult to pin down the concept of intelligence, almost any definition includes the ability to learn, to make analogies from past experience, and to apply one's knowledge with flexibility. Just where the dividing line

*Newsweek* (Feb. 7, 1983), for instance: "No one doubts that these electronic brains are, in a real sense, intelligent: they possess reason, memory, judgment, even creativity and the ability to learn."

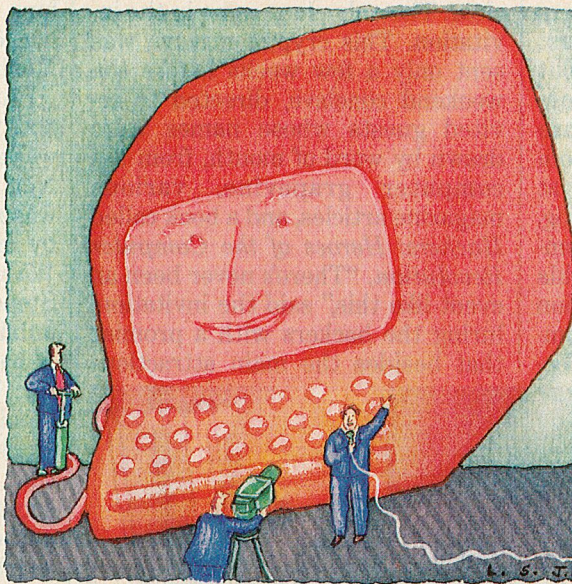
In fact, expert systems do not think, nor do they possess judgment or creativity. They cannot "learn" in the usual sense of the word. The best of them are extremely well-engineered, sophisticated database systems crammed with lots of facts about one particular domain (medicine, for example). They possess reason insofar as they are provided with facts like "if

the problems for which it was designed, but a far cry from an intelligent program.

**I** am not saying that machines, by virtue of being mechanical, could never be intelligent. However, some workers in AI have rushed to create "experts" without first creating programs that have the common sense of children. To achieve intelligence in machines it will be necessary to build programs that do not depend primarily on logic (as do expert systems). Instead, thinking programs will need the elusive abilities of perception and generalization. They will have to be able to get the gist of things, to abstract, and to extract the essential features from concepts. Expert systems are not expert at doing these things.

Not all reporting about AI is exaggerated or false, of course. There are some fine pieces (such as Tom Alexander's in *Fortune* (August 20, 1984) and Mitchell Waldrop's 1984 series in *Science*) that present the issues clearly and accurately. But for the most part, the popular press indulges in catchy slogans that will sell magazines. The goals of AI—building programs that behave in genuinely intelligent, creative ways; programs that understand, learn, and perhaps even feel—are valid but long-range. Progress toward them is likely to be slow. The misrepresentations in the press and the promises made by people selling AI may cause real progress to be viewed as insignificant compared to what has been so triumphantly proclaimed. As computer scientist Joseph Weizenbaum said of those who make the promises, "These people are spending the only capital science has to offer: its good name."

—Melanie Mitchell



between symbol manipulation and real thinking lies is unclear, but so far no program comes close to crossing it.

**M**ost of the coverage of AI in the popular press focuses on so-called expert systems—programs that give "expert advice" to doctors, electronic engineers, or geologists. The claims made about these programs are, well, a bit overblown. Take this blithe statement from

the patient's white blood cell count is high, then an infection is present" and have the ability to deduce other facts using rules of logic, such as "if A implies B and B is false, then A is false." However, such a program knows nothing about blood or cells or patients; it does not even know what medicine is. An expert system is, in effect, a fancy electronic handbook, quite impressive in solving