

INDUSTRY NEWS

Perceptronics Pioneers AI Advances With Man-Machine Interface

With the receipt of several defense contracts last year, Perceptronics, a technology development firm headquartered in Woodland Hills, Ca., has established itself as a pioneer in the application of artificial intelligence to military systems, particularly those requiring a direct interface between man and machine. The \$8 million per year publicly-held company posted a nearly \$10 million backlog for AI-based work at the close of calendar year 1984, a \$4 million increase over the previous year.

The emergence of Perceptronics as a powerhouse in the development of AI—an element of computer science that allows computers to mimic the cognitive processes of the human brain—is an important development considering that the company entered the field just two years ago. The bulk of the firm's revenues are derived from the production of training, simulation and support systems such as tabletop gunnery trainers for tank and fighting vehicle crews (see *DE*, Jan. 1984, p. 32).

Contracts for AI work are spread among the three services, the Defense Advanced Research Projects Agency (DARPA) and various civil research institutes including NASA's Ames Research Center and the University of Illinois. For the Army Research Institute, Perceptronics is developing a soldier-machine interface architecture that will use AI-programmed computers and displays to aid helicopter pilots as well as tank and infantry vehicle commanders. The firm was awarded a five-year, \$5 million contract last May as part of the Army's vehicle integrated electronics project.

Other AI programs at Perceptronics include:

- A Rapid Prototype AI Demonstration for training senior battle staff officers to understand how AI can aid them in making command and control decisions
- A Pilot's Associative Definition Study funded by DARPA that uses AI knowledge-based models to help U.S. Navy pilots of F-14 fighter aircraft locate and identify hostile targets
- A project sponsored by the NASA Ames Research Center aimed at applying AI to nap-of-the-earth flying in next-generation "intelligent helicopters."

According to Azad Madni, vice-president of Intelligent Man-Machine Systems at Perceptronics, the company will also develop AI programs for an autonomous vehicle system under development at Martin Marietta and for portions of the Pentagon's strategic defense initiative and strategic computing programs. "Artificial intelligence in the form of expert systems and knowledge bases can be of tremendous benefit to the military user," said Madni. "There are profound advantages in allowing an AI-programmed computer to make decisions or provide options to the man-in-the-loop," he said. While the practical application of AI still remains in its infancy, Madni and other Perceptronics officials anticipate that AI will be the driver for scores of new weapons systems and programs now in the planning stages.

Perceptronics uses two Symbolics Lisp computers connected to VAX mainframes for programming its AI software. —J.B.S.

JANUARY 1985 VOLUME 17 NUMBER 1

DEFENSE ELECTRONICS