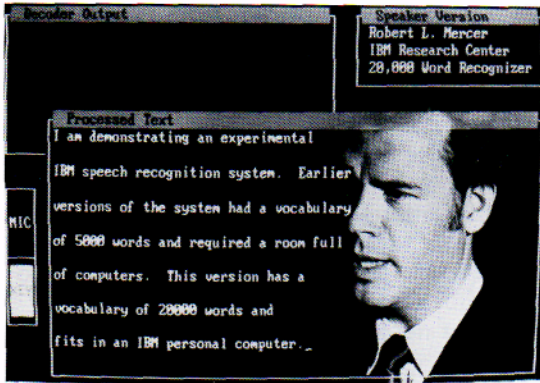# IBM
announces voicerecog-
nition breakthrough

IBM VOICE RECOGNITION SYSTEM

Scientists at IBM's Thomas J. Watson laboratory have announced the development of an experimental, PC-based, voice recognition system with a vocabulary of 20,000 words, 97% of all the words in use in business.

Words spoken into a small microphone appear on screen almost instantaneously. The system is speaker dependent, and requires the operator to perform a 20-minute session to train the computer to recognize his or her voice.

At the moment, the system is only capable of recognizing words separated by a brief pause. However, experienced users can speak to the system so quickly that the difference between "system-speak" and their normal speech is barely noticeable. Efforts at IBM to develop a system to understand continuous speech will now accelerate. That task, IBM admits, is more difficult, and the computing power necessarily greater.

The unique IBM approach to speech recognition is based on two statistical models. The first results from a speaker's training session which analyzes 200 of the speaker's sound patterns. When the speaker uses the system, it matches the sound patterns and creates a list of candidate words from the 20,000 word vocabulary.

Those candidates are then subjected to a second statistical filter, using a 25-million word database drawn from IBM office correspondence. Final selection is made from words most likely to follow the two previous words in the user's sentence. The system's "contextual" ability enables it to distinguish between different words that sound alike — such as "know" and "no" or "to," "too," and "two." Punctuation is added verbally.

The system runs on an AT carrying two powerful high-speed subsystems using IBM developed digital signal processors (DSP). Developed at IBM laboratories in Switzerland and France, the DSP chips can perform 30 million operations per second (30 mips). Each contains some 6,000 logic elements, or gates.

IBM refuses to speculate on when such a language recognition system might be available commercially. It is, however, beginning to test the system