

JANUS system blazes trail

Electronic product can recognize spontaneous speech

By SUMIKO OSHIMA

Staff writer

Scientists have long dreamed of developing electronic products that can be operated by verbal commands, and that fantasy is becoming a reality, according to one of the world's leading experts in speech recognition systems.

"I think we are at the level where clearly these products are available," says Alexander Waibel, principal research computer scientist at Pittsburgh's Carnegie Mellon University and professor at the University of Karlsruhe, Germany.

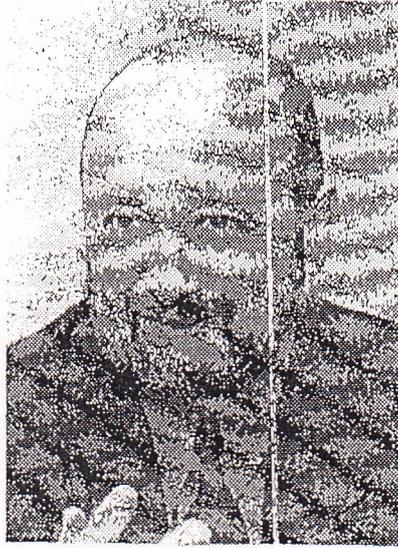
His international research team recently developed a state-of-the-art speech recognition system.

The system, JANUS, has received top marks in performance tests by both the U.S. and German governments in the past few years.

It can recognize speaker-independent, spontaneous telephone conversation — the most difficult task in speech recognition research — and last year achieved the lowest error rate of any system at 26.7 percent.

High dictation performance, such as comprehension of newspaper articles read aloud, is another strong point. It has a less than 7.8 percent error rate in English and an 8 percent rate in Japanese, he said.

"The technology we've developed focuses on spontaneous speech (so it can handle) sloppy speech. That is a strong feature of our technology," Waibel said during a re-



Alexander Waibel

cent stop in Tokyo to give a presentation to companies interested in using his system with their products.

With an effort to provide greater access to speakers of different languages, Waibel and his research team now offer the system in 17 languages.

Using JANUS technology,

The technology focuses on spontaneous speech, so it can handle sloppy speech

Pittsburgh-based Interactive System Inc. — where Waibel serves as chief technical adviser — has created a software kit for developing Japanese voice-recognition applications with Tokyo-based venture company Advanced

Media Inc.

Telephone companies such as AT&T in the United States already use voice recognition systems, but a system that recognizes spontaneous speech from various users is not yet commercially available, according to Waibel.

In blazing a trail in the market with a sophisticated speech recognition application, cooperation between basic and applied research is the key, he said.

"In the past, companies sold speech recognition systems instead of helping partners to develop (applications). It's sort of like selling motors when people want cars," Waibel said.

Several prototype applications already have been developed in his laboratory. Such systems include a voice-operated driver-assistance system, in which drivers input destinations and receive verbal directions, and "meeting browser," in which participants can read a transcribed record of the meeting on a screen.

"With this browser, you can easily catch other people up even if they come late for meetings," Waibel said. Telephone directory assistance and transcriptions of video tapes are among other promising applications.

"This technology offers growing market opportunities, because it makes computing devices simpler and easier to use for the average human being. We are trying to bring such technology to the market, people and society," he said.