

Speak It in Chinese, Hear It in English

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March 13, 2006 issue - Alex Waibel doesn't understand Chinese, but he can read street signs when in Beijing. A team of engineers led by Waibel at Germany's Karlsruhe University has developed a handheld device called the Sign Translator. It uses an integrated camera and software that recognizes, and translates into English, about 3,000 Chinese characters.

The Sign Translator is the cutting edge of a raft of breakthrough developments in translation technology coming down the pipeline. Governments in Europe, rather than corporations, are driving much of the innovation—and with good reason. Consider the European Union: in Brussels, the world's largest translation and interpretation operation spends more than \$875 million a year ferrying information in and out of the bloc's 21 official languages.

A three-year EU project called TC-STAR is pumping \$10 million into language-software R&D. One grantee, Germany's Siemens, has developed software that recognizes spoken words, transcribes them, translates the transcription and then utters the translation by patching together syllables pre-recorded by native speakers in several languages. Siemens's Lecture Translator System will be installed first in the European Parliament, probably within two years. This system and others promise to slash the cost of the European Commission's commitment to multilingualism—and undercut calls to make English the European bureaucracy's sole working language.

DaimlerChrysler, another grantee, is perfecting an antidote to those goofy-looking headphones on display in places like the United Nations. Its ceiling-mounted "audio-beam" speakers can shoot a cone of sound five meters to areas as small as a single seat. Bernard Smith, head of the Luxembourg-based TC-STAR program, jokes that the innovation is "psychologically disturbing" because a listener squeezing down a row of seats for a bathroom visit will be assaulted by a series of sound cones delivering different languages. Alternately, the Lecture Translation System will also provide wireless subtitle goggles for parliamentarians who prefer to read speeches.

EU cash is also helping companies like Nokia, which is developing cell-phone software that translates and utters, in real time, dialogue in English and Chinese. Because the software transcribes what it translates, it also creates a written record of conversations, the better for e-mailing. Imre Kiss, an engineer at Nokia's lab in Tammeri, Finland, says "push from our customers" will likely translate into rollouts within two years.

Across the pond, NASA's Neuro-Engineering Laboratory, or NEL, is trying to bypass speech itself. The Mountain View, California-based lab is developing button-size electrodes that stick to the throat. By analyzing small electrical currents, the electrodes decipher words that are mouthed—but not pronounced. These "subvocal" words can then be delivered as written text, a written translation or strung together as speech with pre-recorded syllables. The prospect of selling phone calls that can't be overheard has made telecom companies prick up their ears. Two majors are in talks with the NEL, while Nokia runs its own program. The EU is devoting funds to similar research.

Humans are still better at translation than machines—people can at least crack (and understand) a joke. But at least machines are rapidly making the world more comprehensible.

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