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Read my lips: PDA will translate

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IMAGINE this: you want to say something quietly in Spanish to a co-worker during a meeting, but you don't speak Spanish. So you simply mouth the words in English, without uttering a sound, and they immediately pop up in Spanish on your colleague's computer screen.

Researchers acknowledge it sounds far-fetched, but they're working to make it a reality. Their goal is to tear down language barriers and improve human speech translation by using computers.

The International Centre for Advanced Communication Technologies, run jointly by Carnegie Mellon University in Pittsburgh and the University of Karlsruhe in Germany, has unveiled on-the-fly computerised human speech translation. The centre's director, Alexander Waibel, delivered a lecture that was translated from English to German and Spanish.

"We're living in an interesting time," he says. "We're increasingly globalising. We have multiple cultural groups that speak different languages. We want everyone working together but to maintain our individuality."

Waibel showed new ways of translating speeches beyond traditional headsets.

Researchers, for example, showed off goggles that delivered translations on a small screen and an array of small ultrasound speakers that delivered a narrow beam of audio in a foreign language to one person while others heard the speech in its original language.

Doctoral student Stan Jou demonstrated a device Waibel described as sounding like science fiction.

Jou mouthed words in Mandarin and 11 electrodes on his face and throat sensed what he said from the movement of his facial muscles and promptly translated it into English and Spanish.

He and Waibel foresee a day when people have implants in their faces and throats to be able to essentially speak foreign languages.

Current speech-to-speech translators can be used in limited situations, such as making hotel reservations.

"If I go to Beijing, I can check in at the Hilton without any problem," says Carnegie Mellon research scientist Stephan Vogel, demonstrating a personal digital assistant with a translator program.

Waibel says PDAs with translator programs could be sold commercially (right now, they're used by humanitarian relief workers and for military purposes) within a year or so, but the more complex speech-to-speech translator will take longer.

The device isn't perfect. During Waibel's lecture, the translator erred sometimes transcribing his speech in English.

The word "might" showed up as "mate", "some" as "sum" and "patent" as "patten."

"We have to improve performance," Waibel says. "It's important for a system to tell you when it's wrong. Computers are awful at that."