

A diagram consisting of two rectangular boxes, one on the left labeled 'English' and one on the right labeled 'Persian'. A blue arrow points from the 'English' box to the 'Persian' box, and a red arrow points from the 'Persian' box to the 'English' box. The boxes are connected by thin lines extending to the left and right edges of the page.

English

Persian

Breaking the Language Barrier

by Kieth Roshangar

At the University of Southern California's (USC) Viterbi School of Engineering, an interdisciplinary team has developed a two-way, Persian/English translation system. Called the Transonics Spoken Dialog Translator, the system is designed for doctor-patient communication.

Still in its early stages, the system's current ability is fairly limited. One reason is the temporary disparity between English and Persian word banks — infused with 23,000 and 9,000 words, respectively. Despite this shortcoming however, the translator shows much potential as it contains the capacity to translate not only words and phrases, but also to detect intonation or emotion in speech, and partially compensate for what might otherwise be lost in translation.

One of the first questions that comes to mind is why *Persian*? The language was selected for a medley of reasons. According to team lead, Shrikanth Narayanan, Professor of Electrical Engineering, Linguistics and Computer Science at USC, the Persian language is of "special interest" because it is a present-day, geographically non-European language and thus has not

been avail to a great deal of spoken technology research. Further, Persian is prominent in the Southern California area which holds the highest concentration of Iranians in the United States.

Currently, Transonics is limited to English and Persian. Nevertheless, people across the world are kneading other languages into the system. "Speech translation is a very challenging research, and very interdisciplinary, and people across the world are working on languages ranging from Mandarin, Korean and Arabic to Spanish and French," says Narayanan.

The translator works by capturing speech, either English or Persian, processing it, and offering the speaker several options on screen. (Engineers realized that the machine's best guess might not always be the right one.) When a choice is made, the system "speaks" the translation out loud and waits for the second user to respond.

It is a far cry from the Universal Translators science fiction writers have predicted will allow us to speak with alien races, but for now the system will allow doctors to communicate directly with their patients.