

Evaluations aim to advance translation technology

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Wartime military patrols and civilian encounters can be especially dangerous if neither group understands the other's language. To help American forces secure critical information and communicate with the local population, National Institute of Standards and Technology (NIST) researchers are evaluating prototype, real-time, two-way translation systems for the Defense Advance Research Projects Agency (DARPA).

The DARPA program called TRANSTAC (Spoken Language Communication and Translation System for Tactical Use) currently focuses on English and Iraqi Arabic. From July 16 to 20, NIST ran a series of laboratory and outdoor evaluation tests on prototype systems with English-speaking U.S. Marines and Iraqi Arabic speakers at its Gaithersburg, Md. campus.

In each of the exercises NIST measured system capabilities in speech recognition, machine translation, noise robustness, user interface design and efficient performance on limited hardware platforms.

“Effective two-way translation devices would represent a major advance in field translators,” according to Craig Schlenoff, project leader of the NIST evaluation project . “Although American forces in Iraq currently have the use of phrase-based translators, the devices can only translate English into pre-recorded Arabic phrases. They cannot translate Iraqi Arabic into English,” he said.

During the NIST laboratory and field tests the Marines and Iraqi Arabic

speakers acted out 10 different scenarios—ranging from traffic checkpoints to neighborhood surveys—that required verbal communication. Individuals in the laboratory tests looked directly at each other during the question and answer sessions. Although their audible conversation was recorded on a laptop, neither party could see the screen. Iraqi Arabic speakers, who understood English, also wore earphones that blocked out the English language query and, instead, relayed only the system’s Arabic interpretation of the question. Background sounds were tightly controlled, so that the systems could be evaluated in a predictable environment.

The outdoor evaluations included background noises, such as other speakers, generators, opening garage doors, running vehicles and radio broadcasts, simulated more realistic conditions. The military personnel also carried the translator devices in back packs or in another hands-free manner, approximating future hardware developments that should provide American forces with small, even palm-sized translators that would not require attention or interfere with their ability to stay alert and vigilant.

“NIST evaluations provide DARPA with statistically significant data that shows the relative improvements of the TRANSTAC systems over time,” said Schlenoff. “Armed with this information DARPA is better able to make program decisions about which technologies are showing the most promise.”

Once the technology is fully developed, DARPA hopes to be able to develop an automatic translator system in a new language within 90 days of receiving a request for that language.

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