Bilingual Oral Translation

Recognition and translation of spoken phrases

S RI International's Bilingual Phrase Translation software performs bidirectional, phrase-based, voice-to-voice machine translation between English and another language. It matches spoken input phrases to prerecorded translations and plays the output through a speaker. This is best used in an asymmetric dialog, where the English speaker controls the dialog and the other speaker can give one of a set of expected responses. The software also has the capability to spot unexpected words requiring urgent attention, such as *"Help! We need a doctor!"*

The operational benefit of this software is an immediate increase in communication ability without extensive training or human resource limitation. It supplements human translators in situations where the information to be exchanged is fairly constrained and predictable within some range of variability. The software runs on ruggedized Phraselator™ or COTS hardware.

The software is available for licensing. The first system has been developed to translate between English and Pashto, and could be modified to support other language pairs and other domains with development funding.

Overcoming Language Barriers

SRI's Bilingual Phrase Translation software facilitates real-time communication between people who do not share a common language. Predefined English phrases can be spoken and mapped to a prerecorded translation in Pashto, one of

SRI's software enables realtime communication between people who do not share a language

"How are you?"

څنګه يې

"Fine"

ښه يم

the major languages of Afghanistan and Pakistan. The translation is then played to the speaker of Pashto. The Pashto speaker's response is likewise matched to one of a set of likely responses, and the English translation is conveyed to the English speaker.

This application is the next generation technology beyond the Phraselator™ translation product by VoxTec, which uses SRI-developed software to provide unidirectional translation from English to another language. The Phraselator™ has recently been used as a communication tool supporting operations in Iraq and Afghanistan, as well as being used in military exercises and by nongovernment organizations throughout the world. A major difference is that SRI's Bilingual Phrase Translation system translates in both directions: from Pashto to English as well as from English to Pashto.

VoxTec Phraselator™ platform

SRI's Bilingual Phrase Translation system currently includes questions and statements useful for communicating in the context of a refugee camp or medical interview. To increase the reliability of the information exchange, there are several ways to ask Pashto speakers for confirmation that what they said was correctly translated. The prototype system also includes the ability to spot words that require urgent attention from the English speaker and yet have no relation to any preceding conversation. Sample keywords are (the Pashto equivalents of) "doctor", "ambulance", "help", "bomb", "pain", and "danger".

SRI's Speech Technology and Research (STAR) Laboratory

DynaSpeak®, the speech recognition engine embedded in the Bilingual Phrase Translation system, is one of many successful speech technologies developed in SRI's STAR Lab in military and commercial use today. The STAR Lab carries out leading-edge research in speech and language technologies, including work in the modeling of nonlexical aspects of speech. The staff, which includes engineers, computer scientists, and linguists, is active in both technology creation and technology transfer. Nuance Communications Inc., a speech software solutions company spun off from SRI in 1994, is exploiting technologies originally developed in the STAR Lab.

Contact

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