AT&T Translator

Connecting Your World
Imagine joining a business presentation conducted in French via Web conference. As a native English speaker, you might be concerned about understanding the presentation when you don’t speak French, but not today. Every word spoken in French by the presenter is translated in near real-time, to English. At the same time, your colleague in Spain is dialed into the same meeting, and she’s hearing it in Spanish. Colleagues that are traveling have joined the conference using their tablets.

Through technology developed at AT&T Labs, this scenario isn’t far from reality. Leveraging the power of the cloud-based AT&T Watson SM speech engine, AT&T has created near real-time language translation capabilities for AT&T Connect Web conferencing service.

Using the AT&T Watson speech recognition, natural-language processing and text-to-speech capabilities, AT&T Translator takes the spoken or written language, translates it, and then provides the information in the selected language as chosen by the user.

In addition, researchers at AT&T Labs have extended near real-time translation to other applications – like text messaging on your mobile device. When you type and send a text, the application sends your message to the cloud in the AT&T network, where it translates the text and sends the message to the receiver in their preferred language.

How did the idea hatch?
Whether it’s breaking down language barriers or powering virtual assistant capabilities, research in speech recognition and translation technologies has a long history at AT&T Labs, and through the power of The Innovation Pipeline (TIP) – AT&T’s employee crowdsourcing program – our researchers have been able to develop the next-generation of AT&T Translator capabilities.

Additionally, AT&T enterprise customers were seeking real-time translation solutions, driving the need to develop the solution for AT&T Connect Web conferencing.

Researchers at AT&T Labs – like Srinivasa Bangalore – have devoted more than one million hours of research to create the technologies behind the AT&T Watson speech engine, all with the goal of using the power of your voice to accomplish more. Bangalore notes, “Eventually, we hope that these technologies will not only have a significant commercial value, but also enable people to understand each other better, despite their linguistic barriers.”

The Future
Translation technology breaks down language barriers and offers the promise of seamless communication between people speaking different languages. AT&T Labs researchers expect that translation technologies like these will have a significant impact on a diverse range of industries including, tourism, healthcare, or law enforcement. The most opportune areas to apply translation are those where the language barrier is currently preventing people from communicating with each other freely.
• **Unified Communications.** Researchers are currently trialing AT&T Translator capabilities in a core component of AT&T Unified Communications Services, AT&T Connect Web Conferencing Services. In the future, real-time translation will be more widely available through other features of AT&T Unified communications Services.

• **Multi-party Conferencing.** Additionally, researchers are exploring how to extend the system to support multi-party conferencing capabilities.

• **More languages, one voice.** AT&T Translator currently supports seven different languages. As more languages are added, researchers are addressing how to balance latency with accuracy – especially for language pairs with radically different word orders, such as English-Japanese. This technology will increasingly allow the spoken or written words of many languages to be understood in one voice.

**About the Researcher**

Srinivas Bangalore is a Principal Member of Technical Specialist in the Voice and IP Services Laboratory at AT&T Labs-Research. Over his 15-year tenure at AT&T, he has worked on many areas of natural language processing, including Spoken Language Translation, Multimodal Understanding, Language Generation and Question-Answering.

Vivek Kumar Rangarajan Sridhar is a Senior Member of Technical Staff at AT&T Labs. He has a M.S. and Ph.D. in Electrical Engineering from University of Southern California (2008). Prior to joining AT&T he was a scientist at BBN Technologies for two years. His research interests are in the areas of spoken language understanding, machine translation, automatic speech recognition and text-to-speech synthesis. He has published in several prestigious journals and conferences and currently has 1 patent with several more under review. His Ph.D. dissertation also served as the basis for a National Science Foundation grant titled "An Integrated Approach to Context Enriched Speech-to-Speech Translation" that he is involved in collaboration with University of Southern California. He has been instrumental in the translation effort at AT&T and has been a key contributor to the team that released AT&T Translator in the iTunes and Android Store. He also received the AT&T Labs President’s Excellence Award in 2012 for his work on text and speech translation.