Rapid Language Adaptation Tools for Multilingual Speech Processing

Tanja Schultz
Cognitive Systems Laboratory
University of Karlsruhe
Am Fasanengarten 5, 76131 Karlsruhe, Germany
tanja@ira.uka.de, http://csl.ira.uka.de

Abstract

The performance of speech and language processing technologies has improved dramatically over the past decade, with an increasing number of systems being deployed in a large variety of applications, such as spoken dialog systems, speech summarization and information retrieval systems, and speech translation systems. Most efforts to date were focused on a very small number of languages with large number of speakers, economic potential, and information technology needs of the population. However, speech technology has a lot to contribute even to those languages that do not fall into this category. Languages with a small number of speakers and few linguistic resources may suddenly become of interest for humanitarian and military reasons. Furthermore, a large number of languages are in danger of becoming extinct, and ongoing projects for preserving them could benefit from speech technology. With more than 6900 languages in the world and the need to support multiple input and output languages, the most important challenge today is to port speech processing systems to new languages rapidly and at reasonable costs.

In my talk I will introduce state-of-the-art techniques for rapid language adaptation and present solutions to overcome the ever-existing problem of data sparseness and the gap between language and technology expertise. I will describe the building process for speech and language processing components for new unsupported languages and introduce tools to do this rapidly and at lost costs. I describe the Rapid Language Adaptation Tools (RLAT) which built on existing projects like SPICE, GlobalPhone, and FestVox and enable users to develop speech processing components, to collect appropriate speech and text data for building and improving these components, and to evaluate the results allowing for iterative improvements.