Workshop: The use of ultrasound in teaching non-native speech sounds

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How is an adult language learner supposed to figure out how to produce speech sounds of a language that are not produced in his/her native language? The technologically simple—and therefore most common—approach is for the learner to listen to pronunciations of a native speaker and to try to figure out how to produce those sounds based on how well the acoustics he/she produces match the native speaker. The learner can also rely on proprioceptive feedback, provided specific information on articulation is provided to the learner, but this introspection is difficult for many people.

This workshop will introduce participants to how the real-time visual feedback during speech production that ultrasound provides can be used as a learning tool in teaching Spanish and Portuguese pronunciation. The first half hour of the workshop will be an introduction to how ultrasound works and a discussion of the benefits of using it for studying speech sounds, with live, concurrent demonstrations throughout the introduction.

The second half hour of the workshop will focus on how this ultrasound feedback can help overcome two types of problems encountered specifically by learners of Spanish and Portuguese:

1) Articulation of speech sounds that simply do not exist in the learner’s native language:
   - production of the Spanish fricative /x/
   - Spanish trilled /ɾ/ 
   - the high, back, unrounded Iberian Portuguese vowel /ɯ/

2) Getting rid of articulatory “baggage” that the learner’s native phonology brings to the language being learned:
   - producing vowels like /e/ without the off-glide that is obligatory in English
   - producing Portuguese nasal vowels without any following coronal “n”-gesture

There will be 3 ultrasound machines available for use by workshop participants. In the last half hour of the workshop, participants will break into smaller groups for interactive, hands-on use of the ultrasound machines. The goals will be for participants to gain a better understanding of how ultrasound works and what it can show, to visualize what the articulations of various speech sounds look like, and to explore and discuss how ultrasound can be used to help in overcoming pronunciation challenges the participants face in the classroom.