2aED14. Investigation of a tongue-internal coordinate system for two-dimensional ultrasound. Rebecca Pedro, Elizabeth Mazzocco (Speech and Hearing Sci., Indiana Univ., 200 South Jordan Ave., Bloomington, IN 47405, rebpedro@indiana.edu), Tamás G. Csapó (Dept. of Telecommunications and Media Informatics, Budapest Univ. of Technol. and Economics, Budapest, Hungary), and Steven M. Lulich (Speech and Hearing Sci., Indiana Univ., Bloomington, IN)

In order to compare ultrasound recordings of tongue motion across utterances or across speakers, it is necessary to register the ultrasound images with respect to a common frame of reference. Methods for doing this typically rely either (1) on fixing the position of the ultrasound transducer relative to the skull by means of a helmet or a similar device, or (2) re-aligning the images by various means, such as optical tracking of head and transducer motion. These methods require sophisticated laboratory setups, and are less conducive to fieldwork or other studies in which such methods are impractical. In this study, we investigated the possibility of defining a rough coordinate system for image registration based on anatomical properties of the tongue itself. This coordinate system is anchored to the lower-jaw rather than the skull, but may potentially be transformed into an approximately skull-relative coordinate system by integrating video recordings of jaw motion.