Title: Making speech articulation visible: insights from MRI

Abstract: Speech articulation is imperfectly understood due to its lack of visibility. Understanding articulation has been inferred from acoustics and informed by imaging methods that are potentially unsafe, invasive, or only provide information from a restricted region or time point. Now, advances in real–time magnetic resonance imaging (rtMRI) enable us to visualise articulatory movements of the entire vocal tract. This talk will present a multimodal dataset comprising of 22 adult and adolescent speakers of Australian English (AusE) producing a series of speech tasks. Each task was recorded outside the rtMRI scanner with a digital speech recorder and an electroglottograph. The sustained phoneme task was recorded using volumetric MRI, the non-word, polysyllabic word, and continuous speech tasks using rtMRI. The dataset provided new insights on the complex goals of /l/ articulation, a speech sound still imperfectly understood, partly because of the limitations of most existing data. The current dataset revealed that sustained laterals were characterised by bilateral parasagittal airflow. In intervocalic laterals, central closure varied in location, timing, and duration, but was consistently associated with reduction in overall acoustic intensity relative to context vowels. These data provided further insights into the complex relationships between articulatory, coarticulatory and acoustic properties of /l/.

Bio: Tünde Szalay works on the phonetics and phonology of Australian English and its applications for speech technology and health. She completed her Ph.D. on the *Production and Perception of Lateral-final Rimes in Australian English* at Macquarie University, Sydney, in 2020. As a post-doctoral researcher, she worked in corpus phonetics, using AusKidTalk, the Australian English-speaking children's corpus, and the Future Proofing Study corpus, linking speech to mental health in adolescents. Her current projects cover articulatory characteristics of Australian English and acoustic variation in the speech of queer- and gender-diverse speakers. Her research interests are articulatory variation and big data in phonetics.