# Individual variability and neural plasticity in speech sound learning

In humans, a significant challenge to learning a foreign language is to perceive non-native phonemes. Individual differences in phonetic learning ability have been thus far attributed to cortical circuitry. In this talk, I will review empirical studies and theoretical models that show that speech sound learning is an emergent property of a distributed network consisting of subcortical and cortical structures working in cohesion. The operational specifics of speech learning cannot be understood by exclusively studying cortical structures. I will discuss a series of studies using neuroimaging, genetics, behavioral, and modeling methods that demonstrate the role of subcortical structures in speech sound learning. The talk will also delve into the biological basis for the large individual variability in speech learning success.

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# Biodata

Dr. Chandrasekaran completed his Ph.D. in Integrative Neuroscience from Purdue University and a postdoctoral fellowship at Northwestern University, USA. He uses functional neuroimaging and electrophysiological methods to examine the neural bases of speech perception and auditory learning. Dr. Chandra has published articles in several high-impact Neuroscience journals including *Nature Reviews Neuroscience, Neuron, Journal of Neuroscience, Journal of Cognitive Neuroscience, and European Journal of Neuroscience*. His research work has been featured in various print and television media. He is currently an assistant professor at The University of Texas at Austin and is associated with the Department of Communication Sciences and Disorders, Center for Perceptual Systems, and Institute for Neuroscience. He directs the Sound Brain Lab (http://soundbrainlab.wordpress.com/), which examines the sensory and cognitive processes that underlie speech and music perception.