Principle Investigator: Curtis Billings
Title: Electrophysiology and perception of speech in noise

Objectives: Listening in background noise is one of the most difficult listening situations, ranking as the primary complaint among hearing aid users and a common complaint among the elderly. Despite the prevalence of perception-in-noise data in these populations, it remains unclear how human cortical encoding of signals in noise contributes to perceptual abilities in these populations. A significant portion of the variability in perception-in-noise performance may be explained by neural encoding differences across individuals. Therefore, the purpose of the research proposed is to better characterize the neural encoding of signals in noise and relate that encoding to behavior. The combination of physiological and behavioral information could improve diagnosis of perception-in-noise difficulties and lead to more targeted auditory rehabilitation strategies. Cortical auditory evoked potentials together with behavioral signal-in-noise testing will be used to answer three questions in normal-hearing, hearing-impaired, and older individuals. (1) What is the effect of signal-to-noise ratio on cortical encoding of signals in noise? (2) What are the effects of background noise type on cortical encoding of signals in noise? (3) How does the cortical representation of signals in noise correlate with perception and tolerance of signals in noise?

Findings to Date: There are no findings to report.