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FRIDAY SEMINARS IN SPEECH, LANGUAGE, AND HEARING

Bruton Conferences are Sponsored by the David Bruton, Jr. Endowed Lecture Series in Communication Disorders

Adam Eggebrecht, PhD

"Towards imaging cortical activity during natural dyadic conversations"

Abstract: Social conversations are the primary vehicle adolescents and young adults use to engage in peer interactions, which are the conduit to friendships and long-term relationships. Language is a fundamental element of these social interactions, with reciprocal communication depending upon a dynamic mutual interaction between individuals. Additionally, social communication is a core affected domain in autistic individuals. Current common tools such as functional magnetic resonance imaging (fMRI) provide high spatial resolution information underlying language tasks. However, system noise, as well as spatial and ergonomic constraints of these tools forbid studies of natural dyadic communication. Although well suited to examining brain-brain interactions during dyadic conversations, traditional 'sparse' functional near-infrared spectroscopy (fNIRS) methods have poor spatial resolution and reliability. High-density diffuse optical tomography (HD-DOT) fNIRS methods, by contrast, have fMRI-comparable image quality needed to measure brain-to-brain coupling that underlies successful communication. In this talk, I will introduce HD-DOT for mapping human brain function in natural settings and will discuss recent progress towards measuring brain function during natural conversations.



Dr. Eggebrecht received his PhD in physics with a focus on systems neuroscience. He is currently an Associate Professor of Radiology and Director of the Center for Human Optical Brain Imaging at Washington University. His Brain Light Laboratory, part of the Biophotonics Research Center, is a diverse and interdisciplinary team who focus on developing, deploying, and disseminating novel tools using optical imaging strategies that extend mapping of brain function beyond current limitations. Current funded applications of focus include investigating brain function underlying childhood development as it relates to autism spectrum disorder and congenital heart disease, including clinical bedside imaging, e.g., throughout surgery and during ECMO. Additionally, Dr. Eggebrecht leads dissemination and training of computational tools NeuroDOT and OXI for optical brain mapping. Additionally, Dr. Eggebrecht is developing and applying these optical tools to understand speech and language in health and disease.

Date/Time: Friday, September 25th , 12 noon to 1 pm

Location: MS Teams and Room Glorig