Thursday, December 13th, 2pm ET

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Language Connectivity Pathways and Neuroplasticity in Aphasia
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The study of brain-behavior relations in aphasia has traditionally focused on cortical areas, but the importance of white matter pathways is increasingly recognized. Proceeding from dual-stream models of language function, there is broad agreement that the arcuate fasciculus (AF) is the major white matter anatomical substrate of the dorsal stream responsible for mapping phonology to articulation. However, some authors have also suggested that certain components of the AF contribute to semantic processing for language production, while others have ascribed semantic processing for both comprehension and expression primarily to ventral stream pathways, including the middle longitudinal fasciculus, extreme capsule, the inferior fronto-occipital fasciculus, and the uncinate fasciculus. I will present data from a diffusion spectrum imaging local connectometry study of relationships between structural white matter connectivity, naming, and semantic feature analysis (SFA) treatment in aphasia. Local connectomes demonstrating significant associations with parameter estimates from Dell's Two-Step Interactive Activation Model of word production were generally consistent with the dual-stream model, but also suggest that the AF does participate in lexical-semantic processing. Correlation of pre-treatment connectivity with treatment outcomes was consistent with the hypothesized mechanism of SFA as one in which lexical-semantic representations and their connections with phonological representations are strengthened. Correlation of pre-to-post-treatment change in connectivity with behavioral change revealed associations with right-hemisphere homologues of the core language tracts, as well as cerebellar connections. Across all of the analyses, certain limbic pathways and posterior callosal fibers were also represented. These findings suggest that word production and recovery of language function in aphasia depend on bilateral language and domain-general networks.

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This lecture will be held at the University of South Carolina:
Room 140, Discovery I, 915 Greene Street, Columbia, SC 29208
Date: Thursday, December 13th, Time: **2pm – 3pm** Eastern Time
This event will be catered.

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