Thursday, September 28th, 2pm EDT

https://global.gotomeeting.com/join/667426173

"Advanced diffusion MRI methods for studying white matter integrity in Aphasia"

Emilie McKinnon
Medical University of South Carolina

Cerebral ischemia can result in significant gray and white matter injury, with previous studies showing that white matter, after adjusting for metabolic demands, is even more vulnerable to ischemia than gray matter. Notwithstanding, many studies focus on cortical damage and lesion overlap as an indicator for clinical representation and recovery potential. Unfortunately, in some cases this approach has turned out to be incomplete and several studies have shown that mapping the extent of white matter damage, using connectivity studies, could potentially complete this picture. Although many of these studies solely focus on the number of tracts present, it is plausible that not only the presence of streamlines, but also the integrity along the streamlines plays an important role and could reveal important information. In this talk, I will discuss the importance of microstructure of the residual language network using Diffusional Kurtosis Imaging (DKI). DKI is an extension of the conventional diffusion tensor imaging (DTI), but estimates the kurtosis (non-Gaussianity) of the diffusion process. Water in the brain follows a restricted non-Gaussian diffusion pattern due to the different biological structures. This non-Gaussian pattern cannot be measured using diffusion tensor imaging, but can be directly assessed with DKI. We will briefly cover the basics of DKI, improved kurtosis based white matter fiber tracking and the white matter tract integrity model. The latter is a biophysical model that has been developed to interpret DKI metrics, providing biologically relevant descriptors of the microstructural environment. The remainder of the time, I will present some exciting recently published data using these techniques, that demonstrated an association between therapy- related reduction in semantic speech production errors and an increase in mean kurtosis in the left Inferior Longitudinal Fasciculus (ILF). ILF microstructure was not related to changes in phonemic production errors. These results are directly in line with the dual stream model suggesting that with therapy the ILF becomes increasingly complex as fewer semantic errors are being made.

Location: University of South Carolina, Discovery I, Room #140, 915 Greene Street, Columbia, SC 29208
Date: Thursday, September 28th, 2017. Time: 2pm – 3pm EDT
This event will be catered!

The lecture can also be followed online from your computer, tablet or smartphone, via the following GoToMeeting address (no password required): https://global.gotomeeting.com/join/667426173

You can also dial in using your phone.
United States : +1 (872) 240-3412
Access Code: 667-426-173
First GoToMeeting? Try a test session: http://help.citrix.com/getready

C-STAR LECTURE SERIES

The Center for the Study of Aphasia Recovery (C-STAR; http://cstar.sc.edu/lecture-series/) houses researchers who examine the effects of behavioral treatment, brain stimulation, and residual brain function (brain plasticity) on recovery from aphasia. C-STAR is a collaboration between researchers from the University of South Carolina, the Medical University of South Carolina, Johns Hopkins University, and the University of California, Irvine. The Center is funded through the National Institute of Deafness and Communication Disorders (NIDCD) grant #NIH P50 DC014664. Biweekly public lectures, given by members and guests of C-STAR, are accessible live and online. Recordings of the lectures can be viewed via C-STAR YouTube channel:
https://www.youtube.com/channel/UC8p0CuG4He9nqCR4nnzhZ7w