“Predicting aphasia scores from multimodal neuroimaging: an integrated framework”
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Post-stroke aphasia has been traditionally investigated for lesion-to-symptom relationships. In the last 10 years, there have been an increasing number of studies showing that lesion alone is insufficient to explain the variability of aphasia deficits observed after stroke. A brain network perspective, both functional and structural, provides additional evidence of the architectural organization of the brain after stroke, yielding complementary information that might increase our ability to predict aphasia. I will present a predictive framework that uses multimodal data (i.e., virtual tractography lesions, resting state connectivity, lesional information) to produce preliminary single-modality predictions of aphasia severity. These predictions are then combined into a final multimodal prediction. The method was tested on four aphasia scores obtained from 53 chronic stroke patients, and shows a systematic advantage of multimodal integration over the best single-modality prediction. Our results suggest that all neuroimaging modalities carry information potentially useful for the prediction of aphasia scores, and that, rather than comparing modalities and selecting the best one, optimal aphasia predictions can be derived by combining all information sources into a single enhanced multimodal prediction.

Location: University of South Carolina, Discovery I, Room #140
915 Greene Street, Columbia, SC 29208
Date: Thursday, December 1st, 2016
Time: 2-3pm EDT

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