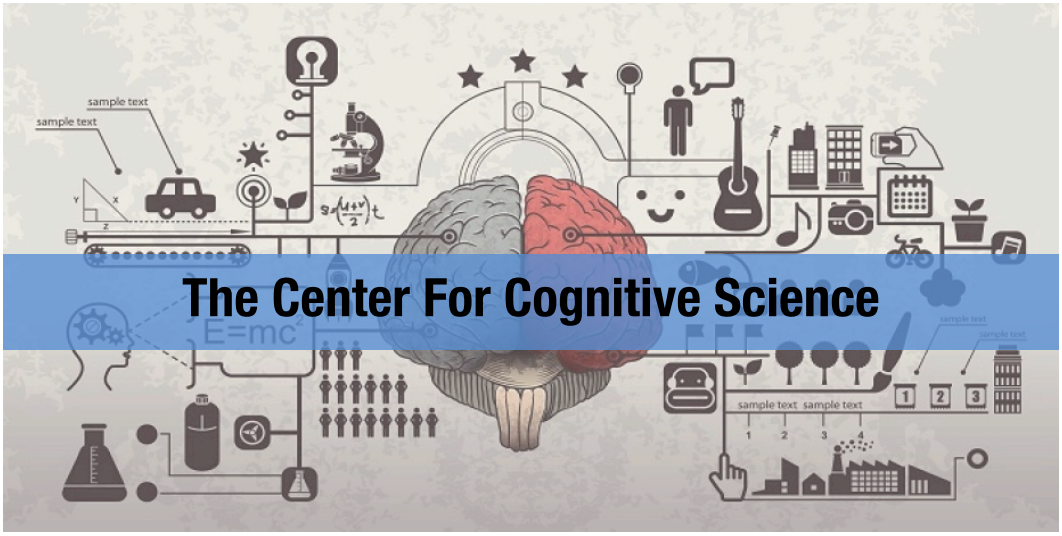

Cognitive Science Colloquium
Wednesday, 24 October 2018, 2:00 P.M.
280 Park Hall

Frits van Brenk

Postdoctoral Research Associate, Communicative Disorders and Sciences,
University at Buffalo

The measurement of acoustic variability in speech and its role in the assessment of motor speech disorders

The production of speech requires a complex organization, interaction, and execution of motoric, sensory, cognitive, and linguistic processes. An important topic of study over the years has been how unimpaired speakers and speakers with motor speech disorders are able to maintain control over speech organs under the influence of subject- and task-specific constraints on speech production. Relatively new data processing techniques of analyzing speech movement stability (and its inverse, variability) are the spatiotemporal index and functional data analysis, and enable the analysis of temporal and spatial variability of time-varying speech properties extracted from the acoustic speech signal, potentially providing researchers and clinicians with new venues into characterizing and quantifying speech impairment. In this talk I will evaluate the suitability of estimators of acoustic variability to distinguish speakers with dysarthria from healthy control participants, discuss the effects of varying linguistic, cognitive, and motor demands on variability, and discuss to what extent acoustic variability estimators relate to established clinical outcome measures and quantifiable details of treatment history. Based on the results of these analyses, I will consider its relevance for speech motor control, and its potential for clinical use.