ANALYTICAL TOOLS FOR FUNCTIONAL BRAIN NETWORK RESEARCH

Speaker: Panpan Zhang
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Time: Wed, Dec. 20th, 10:00-11:00

Venue: Room 102, SCMS

Abstract: Functional magnetic resonance imaging (fMRI) is a non-invasive technique for detecting early brain damage associated with Alzheimer's disease (AD). It is evident that neuronal dysfunction emerges earlier than clinical symptoms of AD, rendering fMRI a promising biomarker that helps facilitate timely interventions and treatments at early stages of AD. Network analytics is a powerful tool for uncovering functional brain network architecture and characterizing the association between functional connectivity alteration and cognitive decline caused by AD. In this talk, I will introduce a few popular network models for functional brain network analysis and also discuss some innovative strategies for dealing with confounding factors, missing data, and measurement errors throughout the analysis.

Bio: Panpan Zhang is an Assistant Professor in the Department of Biostatistics at the Vanderbilt University Medical Center, with a secondary appointment at the Department of Neurology. He is a faculty member affiliated with the Vanderbilt Alzheimer's Disease Research Center. Prior to joining Vanderbilt, Panpan Zhang was a Visiting Assistant Professor in the Department of Statistics at the University of Connecticut and a postdoctoral researcher in the Department of Biostatistics, Epidemiology and Informatics at the University of Pennsylvania. Panpan Zhang received his Ph.D. in Statistics from the George Washington University. He has research interests in network analysis, longitudinal data analysis, and missing data problems.