



Virtual Colloquium

# Using GPS to Measure Community Mobility and Participation of Individuals with Disabilities

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Friday, January 29<sup>th</sup>, 2-3pm Eastern Time (US and Canada)

**Abstract:** This talk will focus on the use of Global Positioning Systems (GPS) to measure community mobility and participation of individuals with psychiatric disabilities. 120 individuals with serious mental illnesses receiving services at four community mental health centers in the Mid-Atlantic region of the US were recruited. Participants were administered several measures that assessed their community participation, community living experiences, psychosocial and health-related outcomes, and cognition. In addition, they were asked to carry around GPS-enabled cell phones that tracked their location at 1-minute intervals over a two-week period. I will describe the spatiotemporal data mining algorithm that was used to compute several measures of community mobility and participation from participants' GPS data; these include the number of destinations, number of unique destinations, time spent outside of home, total distance traveled, and activity space area. I will present the associations between these mobility and participation constructs and the aforementioned self-report measures of community participation, community living experiences, psychosocial and health-related outcomes, and cognition. In addition, I will present the associations between the GPS variables and several objective indicators of the social and built environment, which will be obtained for each individual from a number of secondary databases, including the US Census (socioeconomic variables), Dun & Bradstreet (availability of community amenities), and Walkscore.com (neighborhood walkability). I will also discuss the benefits and limitations of using GPS to measure community mobility and participation.

**Bio:** Eugene is the Director of the Laboratory on Geography, Mobility and Disability at Temple University. His research interests include the use of innovative technologies and analytical tools to examine the predictors of various health-related outcomes. He has served as co-PI on numerous Federally-funded longitudinal and cross-sectional studies that use a variety of GIS, statistical and data mining tools to get a better understanding of the environmental and individual-level factors that may be associated with community mobility, participation and inclusion of individuals with disabilities. In addition, since 2009 Eugene has been a lecturer at the Weitzman School of Design at the University of Pennsylvania, where he teaches a course on statistics and data mining.

