- **Modeling the Accessibility of Chicago's Public Transit: A Dasymetric Mapping Approach for Handling Shortcomings in Census Data** *(Michael Ribant – Northern Illinois University)*

  This paper describes techniques to more accurately compute and map population accessibility measures for Chicago's bus and rail lines. It uses dasymetric mapping to generate the spatial distribution of population, yielding more precise population density estimates than traditional mapping methods. It also uses ancillary mapping techniques intended to visualize the sampling errors inherent in today's census data.

  Modeling transit accessibility using census data has become more challenging recently for two reasons. First, transit accessibility modeling is commonly displayed using traditional choropleth methods, which aggregate results to arbitrary areal units such as census tracts, thus hiding the variability of the underlying data. Second, the American Community Survey has replaced the decennial census as the official source of demographic data and while this data is more timely than that provided in the past, it is sample-based and thus has inherent sampling errors which are both wide and widely misunderstood.

  This research asks the following questions. First, can the dasymetric mapping method be applied to cartographically represent the results of transit accessibility in Chicago more effectively than choropleth mapping? Second, can the labyrinth of error reporting inherent with current data reporting from the American Community Survey be articulated visually? By employing dasymetric mapping and geovisualization techniques to demographic data supplied by the American Community Survey, this research shows that transit accessibility measures for Chicago can be more accurately portrayed with dasymetric mapping relative to choropleth techniques, and that the inherent errors of the underlying sample data can be simply understood visually.