

Feb 18th, 11:30 AM - 12:30 PM

# Methods and Applications of Geospatial Technologies

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**11:30 AM -12:30 PM (ROOM 1311)**  
***Methods and Applications of Geospatial Technologies***  
**Chair: Hua Liu, Political Science and Geography**

**Motorcycle Accident Concentrations in Southern Hampton Roads**

Jason Lee (Mentor: Dr. Hua Liu)

Motorcycle Accidents in the Hampton Roads area have increased due to their increasing popularity for recreation and commuting use. This study attempts to identify accident rate time frames and hot spots over a five year period (2011-2016). The study area includes Suffolk, Chesapeake, Portsmouth, Norfolk, and Virginia Beach. Several factors are studied with geo-statistics and compared to the total rate, to provide understanding of various causes of motorcycle accidents and identify their hotspots and directional distribution. Using time classification techniques, the risks of commuting with a motorcycle is compared against multiple temporal patterns. The study aims to improve motorcycle safety by illustrating the cause and time frame where risk of accidents are greatest.

**Site Selection of New Supermarket in Norfolk, VA**

Cody Ryan (Mentor: Dr. Hua Liu)

GIS can be a powerful tool for business decision-making. Site selection allows decision makers to find locations that will best meet their goals. With a list of criteria for desired locations a series of spatial analysis can be executed that will show the areas that meet your needs. A food desert is a low-income census tract where a considerable number of citizens have low access to a supermarkets or large grocery stores. This project will perform site selection analysis with GIS to identify locations for a new supermarket/grocery store company to build new location. The business would like to address the food desert problem in Norfolk VA by locating the new facility in a food desert.

**Predicting Potential Legionnaires' Outbreaks Using GIS**

Stephen Grassia (Mentor: Dr. Hua Liu)

Legionnaires' disease is a severe form of pneumonia that is caused by the bacteria *Legionella*. It is not contagious by touch but is from breathing in the bacteria. The elderly, especially living in nursing homes, are the most at-risk for contracting the disease. The disease grows in moist climates and in the city, air conditioning serves as the petri dish. The elderly is at the most risk for contracting the disease with frequent usages of air conditioning and cooling towers. By using GIS, we can study hot spots and 100-yard buffers of cooling towers in New York City, and compare the hot spots and buffers to nursing homes to determine which nursing homes are most at risk for its residents being exposed to the disease.