



Civil Engineering Research Seminar Series

Dr. Steven Peterson

Research Scientist
Critical Infrastructure Modeling Group -
Geospatial Information Sciences. National
Security Emerging Technologies Division

Dr. Steven Peterson is a research scientist with the Human Dynamics Group in the National Security Emerging Technologies Division at Oak Ridge National Laboratory. His research interests center primarily on modeling transportation networks using geographical information systems and network spatial statistical analyses with a focus on the transportation of hazardous materials. His recent research projects have included examining agricultural commodity flows across multiple modal networks for the U.S. Department of Agriculture and the examination of regional freight flows through the Chattanooga metropolitan area for the U.S. Department of Energy's Sustainable Vehicle Program. Currently he serves as a member of the Committee on the Transportation of Energy Products with the Transportation Research Board.

Constrained Routing Optimization for Multi- modal Systems with Applications to the United States

The U.S. Department of Energy (DOE) has had a long interest in the safe and secure transportation of hazardous materials, especially radioactive materials. To address this interest Oak Ridge National Laboratory (ORNL) was tasked by DOE to develop a constrained transportation routing model and associated network models for the highway, railway and waterway modes of the United States transportation system. These have been combined into a geographic information system known as WebTRAGIS, or the Web-based Transportation Routing Analysis Geographic Information System.

While WebTRAGIS has been primarily focused on the transportation of high-level radioactive waste for DOE and DOD, it has also been used by agencies such as the Federal Railroad Administration for examining all rail network components carrying hazardous materials, the National Geospatial Intelligence Agency for disaster and emergency response, and by the Agricultural Marketing Service of the U.S. Department of Agriculture for examining the flows of agricultural commodities on the railway and waterway systems. Dr. Peterson will present a brief overview of WebTRAGIS, its constrained routing capabilities, the associated modal networks, and some of the resulting routing research done for DOE and USDA.

Engineering Auditorium
April 5th, 2019 12:30 PM-1:30 PM