

# Transportation System Modeler (postdoc)



## Transportation Research Center at Argonne National Laboratory

Date Posted: January 18, 2016

Argonne National Laboratory seeks solutions to pressing national problems in science and technology. The nation's first national laboratory, Argonne conducts leading-edge basic and applied scientific research in virtually every scientific discipline. This is a great opportunity to bring your top-notch skills to bear in support of world-class scientific research that addresses national and global challenges. For several years Argonne has been ranked as one of the 10 best places to work as a postdoctoral researcher, according to *The Scientist* magazine's annual survey.

### Position Summary:

Argonne is seeking a transportation systems modeler to work on our high-performance transportation system simulation framework, Polaris, and improve the traffic flow models contained within. The software is used for performing detailed simulations of large scale regional transportation systems. The goals of such simulations is to analyze and radically improve the mobility and energy sustainability of transportation. Decision makers at the federal, state and regional levels rely on such simulation models to make decisions on investments and management strategies. The core algorithms of the model include routing, simulating traffic flow and simulating discrete choices travelers make regarding travel patterns and associated activities.

This position provides an exciting opportunity to work at a top-tier National Lab, interact with world-class faculty and Lab scientists, work on transformative solutions to transportation problems and live in the Chicago area, a global metropolis with stunning architecture, leading cultural and educational institutions, a vibrant economy and a major transportation hub.

### Responsibilities:

- \* Develop models and software implementations of multi-modal transportation systems
- \* Develop new methodologies for simulating traffic flow and regional transportation system operations and control
- \* Frequently interact with software developers on implementing new algorithms and improving performance of existing core algorithms
- \* Participate in research teams to perform transportation system energy analysis using Polaris and vehicle energy simulation framework Autonomie, with applications to connected and automated vehicles
- \* Work under minimal supervision

### Skills:

- \* Knowledge of transportation system modeling
- \* Knowledge of the traffic flow theory
- \* Knowledge of algorithmic aspects of graph theory
- \* Experience in the development of transportation models, using commercial or open source software
- \* Experience with C++ for the Windows and/or Linux platform
- \* Verbal and written communication skills

### Required Technical and Professional Expertise:

- \* PhD Degree
- \* English: Fluent

Please apply at <http://goo.gl/PBrNgk>