Post-doctoral Researcher Position: Coupled Modeling of Transportation, Land-Use and Land Cover Models for Chesapeake Bay Watershed

Deadline: February 15, 2021
Term: 2 years

Position Details

A two-year postdoctoral position is available to work with Dr. Sevgi Erdogan with the University of Maryland's National Center for Smart Growth (NCSG) and a multidisciplinary team of researchers from the University of Maryland's Center for Environmental Science (UMCES), the Chesapeake Bay Program (CBP), the University of Nebraska-Lincoln, and Dartmouth College.

This post-doctoral researcher will have a key role in a newly funded, unique multi-disciplinary NSF project that will create a modelling system for the Chesapeake Bay and Watershed that represents human activities such as transportation, land use and land cover change, and their impacts on water quality, including the feedback from impaired water quality that triggers regulatory systems.

For a general overview of the project please see NSF Award Abstract #2009248: https://nsf.gov/awardsearch/showAward?AWD_ID=2009248&HistoricalAwards=false and project website https://sites.google.com/umces.edu/cnh-l-mdhesrf/home.

Job description

The Post-doc Researcher will lead model development efforts at the UMD-NCSG team. The UMD-NCSG team has a loosely coupled socio-environmental modeling system developed for the state of Maryland. For this project, the postdoctoral researcher will extend the transportation model to Chesapeake Bay Watershed. The watershed transportation model will be integrated with a land-use model, SILO (Simple Integrated Land Use Orchestrator, https://silo.zone/) to capture the interactions between land-use and transportation systems. This integrated watershed transportation and land-use model will be coupled with the Chesapeake Bay Program's Land Cover Change model working closely with scientists at the USGS Chesapeake Bay Program Office. This model will form the basis of the built-environment (human) component of our human and estuarine systems model with regulatory feedbacks. Future scenarios will be implemented into this modeling system to reflect various changes in transportation, land-use and land cover due to e.g. climate change, technological changes, political and policy decisions etc. Post-doctoral researcher will be supported by graduate students, and will work closely with other project members from partnering institutions on model integration, scenario development and analysis.

The project will give a unique opportunity to work in a truly multi-disciplinary and multi-institutional team composed of Biogeochemical, Social Ecological Systems, Land Use, Climate, Hydrological, and Geographical modelers. While this position is specific to this NSF project, the candidate will have the opportunity to collaborate in other research and proposal efforts in a dynamic academic environment.

Qualifications:

We are looking for highly motivated and self-driven candidates with good interpersonal skills and the ability to thrive in a diverse, multidisciplinary environment. The successful applicant must have:

- A PhD or equivalent University level diploma in civil engineering-transportation, urban planning, geographical sciences, computer science, earth sciences, or other related fields.

- Strong analytical and quantitative skills supported by strong programming experience. Knowledge and experience in Java and Python programming languages are preferred.

- Expertise and experience in travel demand modeling, and software such as Cube Voyager (preferred), TransCAD, VISUM; familiarity with advanced transportation modeling open-source software such as MATSim (preferred), DTALite; and Land-use models e.g. SILO. Experience and familiarity with graphical user interfaces, GIS, data processing software is preferred.

- Ability to understand and work with existing codes and open source software e.g. making necessary improvements, modifications, additions as needed and ability to implement scenarios in the models.

- Proficiency in written and spoken English and strong communication skills, both personal and academic.

Due to the ongoing pandemic in the United States, applications from U.S. citizens and permanent residents will be given priority but all applications will be given consideration.

How to Apply

Applicants are encouraged to apply by February 15, 2021 but review of applications will start immediately. Please submit your application material online to https://ejobs.umd.edu/postings/80693 including the following documents: (1) a current CV, (2) a letter of motivation describing your interest, relevant experience and research plans in relation to this project, (3) names and contact information for at least 3 professional references. For questions regarding application process, information on the project details, position details, etc. please contact Sevgi Erdogan at serdogan at umd.edu.

The position is available immediately after position is filled. The initial appointment is for 1 year, and then renewable for a second year based on performance. After the second year, the continuation is contingent upon funding availability.

About the Center

The National Center for Smart Growth has an innovative multidisciplinary working environment, with staff expertise in the areas of travel forecasting, land use planning, land use forecasting and economics. The NCSG is affiliated with the School of Architecture, Planning and Preservation, A. James Clark School of Engineering, College of Agriculture & Natural Resources, and School of Public Policy at the University of Maryland. Further information can be found at https://www.umdsmartgrowth.org/