Syracuse University
School of Information Studies

University of Maryland
CENTER FOR ENVIRONMENTAL SCIENCE

Postdoctoral Scholar Position: Coupled Modeling of Transportation, Land-Use and Land Cover Models for Chesapeake Bay Watershed

Deadline: Early consideration, March 15, 2022, open until filled
Term: 2 years

Position Details

The School of Information Studies (the iSchool) at Syracuse University seeks a highly motivated and creative Postdoctoral Scholar to assist with NSF-funded research on the dynamics of coupled natural and human systems. The postdoctoral researcher will work with Dr. Sevgi Erdogan with the iSchool at Syracuse University and a multidisciplinary team of researchers from the University of Maryland's Center for Environmental Science (UMCES), the University of Nebraska-Lincoln, Dartmouth College and the Chesapeake Bay Program (CBP).

This post-doctoral researcher will have a key role in a 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 and the project website.

Job description

The successful candidate will lead model development efforts at the iSchool team under the guidance of Dr. Erdogan and other project Co-PIs. The successful postdoctoral researcher will develop a transportation model for Chesapeake Bay Watershed (using open-source software such as MATSim, https://www.matsim.org). The watershed transportation model will be integrated with a land-use model to capture the interactions between land-use and transportation systems (using open-source software such as SILO, https://silo.zone/). 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 the 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 and undergraduate students, and will work closely with other project members from partnering institutions on model integration, scenario development and analysis. In addition, the candidate will be expected to participate fully in generating publications that report on findings from the study.

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 reserve time for own research and collaborate in other research and proposal efforts in a dynamic academic environment at Syracuse University.

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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, information science, earth sciences, or other related fields.
- Strong analytical and quantitative skills supported by programming experience. Knowledge and experience in Java and Python programming languages are preferred.
- Expertise and experience in advanced transportation modeling open-source software such as MATSim (preferred), DTALite; and Land-use models e.g. SILO. Experience or familiarity with travel demand modeling, and; 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.

How to Apply
Applicants are encouraged to apply by March 15, 2022 but review of applications will start immediately and continue until the position is filled. Please submit your application material online to https://www.sujobopps.com/postings/91770 including the following documents: (1) a 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 syr.edu.

The position is available immediately. 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.