Postdoctoral Associate – Urban Planning and Autonomous Vehicles

Future Urban Mobility Interdisciplinary Research Group

Singapore-MIT Alliance for Research and Technology Centre

SMART is a major research enterprise established by the Massachusetts Institute of Technology (MIT) in partnership with the National Research Foundation of Singapore (NRF). SMART serves as an intellectual hub for international research collaborations, not only between MIT and Singapore, but also involving researchers from the region and beyond. At SMART, we identify and carry out research on critical problems of societal importance. SMART is a magnet attracting and anchoring global research talent, while simultaneously instilling and promoting a culture of translational research and entrepreneurship in Singapore. Five interdisciplinary research groups (IRGs) have been established to date: BioSystems and Micromechanics (BioSym), Centre for Environmental Sensing and Modelling (CENSAM), Future Urban Mobility (FM), Infectious Diseases (ID) and Low Energy Electronic Systems (LEES)

Project Overview

Within the new project titled "**Studying Autonomous Vehicles Policies with Urban Planning in Singapore**", we aim to evaluate the feasibility of autonomous vehicle (AV) policies and investigate their land and transport implications. This project focus on the deployment of AVs in both a greenfield and an infill/brownfield areas in Singapore as well as the development of suitable urban design and AV operation schemes. Part of our research agenda involves the development of the SimMobility simulation framework that integrates and links together various mobility-sensitive behavioral models with state of-the-art simulators to predict impacts of mobility demands, infrastructure changes, and evolving transportation options on the deployment and delivery of people, firms, services and freight. This particular Postdoctoral Associate will focus on the evaluation of the feasibility of autonomous vehicle (AV) policies and investigates their combined land and transport implications.

Responsibilities

The Future Urban Mobility Interdisciplinary Research Group is currently seeking a postdoctoral associate, based at the SMART Centre in Singapore. The job scope is as follows:

- Generating and updating synthetic populations of residents, firms, and workers for particular cities at various points in time;
- Designing and evaluating the performance of land use and mobility scenarios in a simulated environment;
- Collaborating with urban planners and transportation engineers on the design and modeling of car-lite communities
- Performing complex data analysis and integration of geospatial datasets,
- Presenting research results at international workshops, conferences, and exhibits as well as at internal project meetings,
- Co-authoring articles for publication in top-tier, peer-reviewed journals and conferences,
- Monitoring the progress of project components, supervising PhD students, and regularly meeting with Principle Investigators.

Requirements

The candidate should have the following:

- PhD in Urban Planning, Economics, Transportation Engineering, or a related field;
- Advanced skill and experience in data processing and analysis;
- Expertise in agent-based modelling, urban-scale transport modelling;
- Excellent academic standing, positive work attitude, good communication and interpersonal skills and an ability to work independently and in multi-disciplinary teams.

Candidate with any of the following will have an advantage:

- Expertise in behavioral economics and real-estate markets;
- Familiarity with urban planning processes and community redevelopment strategies;
- Experience with programming in scientific languages (e.g. Python, R, Matlab), geoprocessing tools (QGIS, ArcGIS or PostGIS) and databases.

The position will be based at the SMART FM Offices on the new campus of the National University of Singapore (NUS). The postdoctoral associate will work with an integrated team of of faculty, researchers and students from SMART, MIT and Singapore partners, namely: Dr. Le Thi Diem Trinh (SMART), Prof. Christopher Zegras (MIT), Prof. Joseph Ferreira (MIT) and Prof. Moshe Ben-Akiva (MIT).

Requirements

Interested applicants should send a motivation letter expressing specific interest in the position and a detailed CV with information on education qualifications, work experience, list of publications, the contact details of two referees and citizenship status to andrew.tong@smart.mit.edu and CC: diem@smart.mit.edu. Subject should read : **Postdoctoral Associate – Urban Planning and Autonomous Vehicles**. We regret that only shortlisted candidates will be notified.