Postdoctoral Associate – Future Mobility Sensing
Future Urban Mobility Interdisciplinary Research Group

Singapore-MIT Alliance for Research and Technology Centre

SMART is a major new 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 Modeling (CENSAM), Future Urban Mobility (FM), Infectious Diseases (ID) and Low Energy Electronic Systems (LEES) .

Project Overview

The Future Mobility Sensing (FMS) system is a comprehensive platform to facilitate study of users' travel behaviors. We use GPS/GSM/Accelerometer/WiFi data collected by smartphones to facilitate more accurate data collection than traditional methods of household travel surveys. Our system consists of an smartphone app that collects sensor data from mobile devices; a backend server that processes the raw data to infer users' stops, activities, and modes of transportation; and a web application that allows users to verify and interact with their processed data in the form of a map and activity timeline. This technology is poised to transform approaches to surveying individuals and households about their travel, activities and lifestyles, and help transportation agencies, companies, and researchers make better decisions for planning and management. The FMS technology is also being extended to conduct real time surveys, stated preferences surveys, provide feedback and trip planning information to users etc. Beside being used to collect passenger travel behavior data, FMS is also being incorporated into an integrate freight data collection system.

Working on this project provides opportunities to work with professors and researchers from MIT and other collaborating universities, exposure to latest development in smartphone technology, big data analysis and visualization, survey design, and transportation modeling.

We are looking for a highly motivated and proactive postdoctoral associate that will undertake the following activities:

1. Perform analysis and visualization of the large amount of data collected via FMS. The types of data includes travel behavior, well-being/satisfaction, social interactions, phone/battery usage etc.
2. Explore the usage of other sensors on smartphones and other mobile sensing devices in the FMS system. Examples of such devices include GPS loggers, smart watches, On-Board Diagnostic devices, iBeacons etc.
3. Work with the software development team in designing and developing the FMS system and its extensions.
4. Coordinate data collection efforts.
5. Monitor the progress of the project and supervise students, regularly meet with PIs, and disseminate new findings in journals/conferences.

The position will be based at the SMART FM Offices on the new campus of the National University of Singapore (NUS), with the possibility of travelling to MIT (for up to a few months) as part of the international collaboration. The postdoctoral associate will work with an integrated team of faculty, researchers, software engineers and students from MIT and SMART. The MIT PI's for this project are Prof. Moshe Ben-Akiva and Prof. Christopher Zegras.

The initial appointment is for one year, with an extension possible depending upon performance and interest. The position offers a competitive salary and benefits (including some support for relocation to Singapore, if relevant) for the right candidate.

Requirements

- PhD in Computer Science, Transportation or related disciplines
- Independent and self-motivated, yet able to work as part of a multidisciplinary team.
- Significant programming experience in at least one core Object Orientated Language (Java and/or Python preferred)
- Experience in modeling, data analysis and visualization
- Experience in writing research publications
- Practical experience in the development of client-server Android/iPhone applications and systems is preferred
- Familiarity with backend computing technologies, development and concepts (e.g. Serialisation, Webservices, Data Storage and Retrieval) is preferred
- Good analytical, communications, and interpersonal skills

To Apply

Interested applicants should send a cover letter expressing specific interest in the position and a detailed CV with information on education qualifications, work experience, list of publications, and citizenship status to andrew.tong@smart.mit.edu. Subject should read **: *Postdoctoral Associate – Future Mobility Sensing***

We regret that only shortlisted candidates will be notified.