

## How you move says who you are:

### Evacuation analysis at the time of disaster and GPS trajectory analyzer

**Abstract:** This presentation will address two travel behavior analysis. The first one shows how people behaved and traffic congestion expanded immediately after the Great East Japan Earthquake on March 11, 2011 using information such as probe vehicle and smartphone GPS data. Understanding evacuation behavior is the key for effective evacuation support plans and operations. Following the Great East Japan Earthquake, however, vehicle detectors did not work due to the severe tsunami and electric power failure. Therefore, information was only available from individuals' probe vehicles and smartphone GPS data. These probe data, along with disaster measurements such as water immersion levels, revealed the sudden transition of vehicle speed and people's irrational behaviors. The second one is developing GPS trajectory analyzer tool. The above analysis provided inspiration to this tool. It enables to identify the facility location, activity recognition, and map matching by using GPS trajectory data only. In addition, the analysis shows that the long-term GPS trajectory can be like a fingerprint of each traveler.

## Yusuke Hara



Yusuke Hara is a postdoctoral associate at Singapore-MIT Alliance for Research and Technology (SMART). His research focuses on travel behavior analysis for long term, transportation services design, and mechanism design for urban transportation system. He holds a Ph.D./MS/BS from the University of Tokyo. He worked at Tohoku University as a assistant professor for 4 years and worked at the University of Tokyo as a assistant professor for 2 years. Further information on his academic research and professional work can be found on his website at <https://sites.google.com/site/harapon1012/>.

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**11:30 am**

**SMART-FM Seminar Space @ Level 9**

